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  - THE MIGHTY CHICKEN ~~TE~~ THE LENGTH OF TWO ~~W~~
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most

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THE GUINNESS BOOK OF WORLD RECORDS



Bantam Books in the Guinness Series

GUINNESS BOOK OF OLYMPIC RECORDS

GUINNESS BOOK OF WORLD RECORDS 1988

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# GUINNESS

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## BOOK OF

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## WORLD RECORDS

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### EDITORS

Alan Russell 1986-87

Norris McWhirter 1955-85

David A. Boehm, *American Editor-in-Chief*

Cyd Smith, *Assistant Editor*

Jim Benagh, *Sports Editor*

Gene Jones, *Associate Editor*

Robert Obojski, *Contributing Editor*

Ian Gordon, *Contributing Editor*



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# THE STORY BEHIND THE GUINNESS BOOK

On 12 September 1954, Sir Hugh Beaver invited Norris and Ross McWhirter to see if their fact and figure agency in London could help settle arguments about records. An office was set up at 107 Fleet Street, London, and work began on the first 198-page book. The printers bound the first copy on 27 August 1955. Before Christmas the *Guinness Book* was No. 1 on the best-sellers list. It has occupied this position every year since except 1957 and 1959 when it was not republished.

The first US edition appeared in New York in 1956 followed by editions in French (1962) and German (1963). In 1967 there were first editions in Japanese, Spanish, Danish and Norwegian, while the following year editions were published in Swedish, Finnish and Italian. In the seventies there followed Dutch (1971); Portuguese (1974); Czechoslovak (1976); Hebrew, Serbo-Croat and Icelandic (all in 1977) and Slovenian (1978). In the 1980's translations into Greek, Indonesian, Chinese, Turkish, Hindi, Malay, Arabic, Thai, Tamil, Telugu, Malaysian, Kannada and Hungarian brought the total to 262 editions in 35 languages.

By 1974 the *Guinness Book* earned its own place in the *Guinness Book*. It has become the top-selling copyright book in publishing history. By 1987 the global sales had risen to more than 57 million, which is equivalent to 163 stacks, each as high as Mount Everest.

October 1987

Iveagh  
[BENJAMIN GUINNESS]  
EARL OF IVEAGH, Chairman  
Guinness, PLC

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## PREFACE

Many events and feats reported to us do surpass all other known claims yet are not included in each new edition of the book. The *Guinness Book of World Records* is not a compendium of every record ever set, but a rather subjective selection of those that the editors *in their sole discretion* find to be the most significant and/or interesting. Moreover, in order to give succeeding editions of the book variety, some records and photos, and even some whole categories of records, are dropped from time to time even when they have not been exceeded.

This 26th US edition has been brought up to date by the editors and provided with many new photos.

We wish to thank correspondents from the many countries of the world for raising and settling various editorial points. Strenuous efforts have been made to improve the value of the material presented and this policy will be continued in future editions.

Sterling Publishing Co, Inc  
Two Park Ave, New York, NY 10016



responsible for marathon events would be well counseled to seek medical advice before, and surveillance during, marathons which involved extended periods with little or no sleep.

## Documentation and Verification

■ We do *not* normally supply personnel to monitor, invigilate or observe record attempts, but reserve the right to do so. In any case, the burden of proof rests with the claimant. No particular form is required, and no entry fee is payable. Guidelines for documentation are provided below. We cannot accept as accurate any claim that is insufficiently documented.

■ Claimants should obtain independent corroboration in the form of local or national newspaper, radio or TV coverage. Newspaper clippings must be annotated with the name of the newspaper, its place of publication and the date of the issue in which the article appeared. When possible, the name of the reporter and black-and-white and/or color action photographs should also be supplied. Videotapes and audio cassettes should not be sent, but held in reserve in the event further documentation is requested.

■ Claimants should send signed authentication by independent, impartial adult witnesses or representatives of organizations of standing in their community. Where applicable, a signed document showing ratification by a governing body should be supplied (see above). A claim is naturally enhanced by a witness with a high degree of expertise in the area of endeavor.

■ Signed log books should show there has been unremitting surveillance in the case of endurance events. These log books must include, in chronological order, the times of activity and the times and durations of all rest breaks taken. The log books must be legible and readily decipherable. They must include signatures of witnesses with times of entering and leaving (at least two *independent* witnesses must be on hand at all times). Where applicable, score sheets must be kept to demonstrate a satisfactory rate of play.

All submissions become the property of the publishers. The publishers will consider, but not guarantee, the return of material, only if a self-addressed stamped envelope or wrapper is supplied *with sufficient postage*.

## Revisions

Notwithstanding the best efforts of the editors, errors in the book, while rare, may occur. In the event of such errors, the sole responsibility of the publishers will be to correct such errors in subsequent editions of the book.

If there are discrepancies between entries in one edition and another, it may be generally assumed that the *later* entry is the product of up-to-date research.

## Editorial Offices

Please consult the latest edition of the book before phoning or writing the editorial offices, which are primarily concerned with maintaining and improving the quality of each succeeding edition. We do not offer advice on choosing a record for anyone to attempt breaking. Also, we are unable to perform the function of a free general information bureau for quiz competitions and the like. However, we are always happy to hear about new records attempts. From the American Editors of Guinness





# The Human Being

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## 1. DIMENSIONS

### Tallest Men

The true height of human giants is frequently obscured by exaggeration and commercial dishonesty. The only admissible evidence on the actual height of giants is that collected in this century under impartial medical supervision. Unfortunately, medical papers themselves are not blameless in including fanciful, as opposed to measured, heights.

The assertion that Goliath of Gath (c. 1060 BC) stood 6 cubits and a span (9 ft 6½ in) suggests a confusion of units or some over-enthusiastic exaggeration by the Hebrew chroniclers. The Hebrew historian Flavius Josephus (b 37 or 38 AD, d c. 100 AD) and some of the manuscripts of the Septuagint (the earliest Greek translation of the Old Testament) attribute to Goliath the wholly credible height of 4 Greek cubits and a span (6 ft 10 in).

Modern opinion is that the tallest recorded man of whom there is irrefutable evidence was the pre-acromegalic giant Robert Pershing Wadlow, born at 6:30 a.m. in Alton, Ill, on Feb 22, 1918. Weighing 8½ lb at birth, his abnormal growth started at the age of 2, following a double hernia operation.

At the age of 9 he was able to carry his father, Harold (d Sept 1967), later mayor of Alton, who stood 5 ft 11 in tall and weighed 170 lb, up the stairs of the family home. On his 13th birthday, he stood 7 ft 1¾ in tall, and at the age of 17 had reached 8 ft 0½ in.

Dr C. M. Charles, Associate Professor of Anatomy at Washington University School of Medicine, in St Louis, and Dr Cyril MacBryde measured him at 8 ft 11.1 in, on June 27, 1940. He died 18 days later, at 1:30 a.m. on July 15, 1940, in Manistee, Mich, as a result of a septic blister on his right ankle, caused by a poorly fitted brace. Because of his rapid growth, Wadlow had limited feeling in his legs. He was buried in Oakwood Cemetery, Alton, Ill, in a coffin measuring 10 ft 9 in long, 32 in wide, and 30 in deep.

His greatest recorded weight was 491 lb on his 21st birthday. He weighed 439 lb at the time of death. His shoes were size 37AA (18½ in long) and his hands measured 12¾ in from the wrist to the top of the middle finger. His arm span was 9 ft 5¾ in and he consumed 8,000 calories daily. He wore a size 25 ring.

The only other men for whom heights of 8 ft or more have been





**TALL AND SHORT IDENTICAL TWINS:** The Lanier brothers (18), 7 ft 4 in, meet the 4-ft-1-in sisters, Doreen Williams and Darlene McGregor (39) of Oakland, Calif.



**TALLEST LIVING MAN:** The 418-lb Mozambique circus giant Monjane is not Wadlow's height, but at 8 ft 0.3/4 in, he is the tallest person living.





**TALLEST LIVING WOMAN:** Sandy Allen, 7 ft 7¼ in tall, on her 26th birthday, was given a party by her friends in Niagara Falls, Ont., Canada. (Gordon Counsell)

## Tallest Giantesses

Giantesses are rarer than giants but their heights are still spectacular. The tallest woman in history was the acromegalic giantess Zeng Jinlian (pronounced San Chung Lin) (b June 26, 1964) of Yujiang village in the Bright Moon Commune, Hunan Province, central China. She could not stand erect, due to scoliosis, but was 8 ft 1¾ in long when she died on Feb 13, 1982. She began to grow abnormally from the age of 4 months and stood 5 ft 1½ in before her 4th birthday and 7 ft 1½ in when she was 13. Her hands measured 10 in and her feet 14 in in length. Her parents are 5 ft 4 in and 5 ft 1½ in while her brother was 5 ft 2 in tall at age 18.

## Tallest Couple

Anna Hanen Swan (1846–88) of Nova Scotia, Canada, was billed at 8 ft 1 in but actually measured 7 ft 5½ in. In London, June 17, 1871, she married Martin van Buren Bates (1845–1919), of Whitesburg, Letcher County, Ky, who stood 7 ft 2½ in, making them the tallest married couple on record.

## Shortest Little People

The strictures which apply to giants apply equally to dwarfs, except that exaggeration gives way to understatement. In the same way 9 ft may be regarded as the limit toward which the tallest giants tend, so 23 in must be regarded as the limit toward which the shortest mature





**SHORTEST AND  
LIGHTEST GIRLS:** (Above  
left) The little Greek girl,  
Stamatoula, photographed at  
age 9. In this picture, she  
weighed 4 lb 4 oz. (Left)  
Lucia Zarate of Mexico  
weighed 4.7 lb at age 17,  
after weighing 2½ lb at birth  
in 1863. (Above right)  
"Princess Pauline" Musters, a  
Dutch midget, weighed 9 lb  
at her heaviest and reached  
23.2 in at age 19.

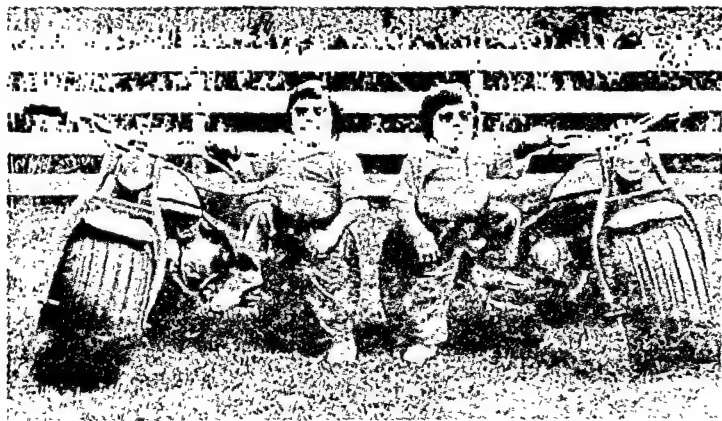




Republic. On Apr 2, 1987, he was examined by the head of the nation's medical association who revealed this tiny man measured 28.3 in in height, weighed only 15 lb, had a 17½ in chest and 16 in waist. The doctor also reported Nelson had stopped growing. The rest of his family is normal-sized.

## Shortest Twins

The shortest twins ever recorded were the primordial dwarfs Matjus and Bela Matina (b 1903–fl. 1935) of Budapest, Hungary, who later became naturalized Americans. They both measured 30 in. The world's shortest living twins are John and Greg Rice (b Dec 1951) of West Palm Beach, Fla, who both measure 34 in.



**SHORTEST LIVING TWINS:** The Rice brothers, John and Greg, of West Palm Beach, Fla, 34 in tall, love their special-size motorcycles.

**SHORTEST LIVING MAN:** Nelson de la Rosa poses in the indoor market place in his home town, Santo Domingo, Dominican Republic, with American "amigo," Richard L. Finkler. He is 19 years old, measures 28.3 in tall and weighs 15 lb.







**HEAVYWEIGHT:** Mrs Flora Mae Jackson, 5 ft 9 in, known in show business as "Baby Flo" (b 1930 Shuqualak, Miss) weighed an authenticated 840 lb on Dec 9, 1965, just before she died.



**HEAVIEST LIVING MAN:** T. J. Albert Jackson (b 1941 in Canton, Miss) known as "Fat Albert," has a 120-in chest, 116-in waist, 70-in thighs and 29½-in neck. His weight varies between 872 and 898 lb. He spends his time being transported as "overweight baggage" from show place to show place, all over the US for Four C Productions, Inc, of Miami. (Wide World Photos)



**HEAVIEST TWINS:** Benny and the late Billy McCrary (McGuire) weighed almost 1,500 lb together. They were normal at birth.



## HEAVIEST MEN

	lb
Jon Brower Minnoch (1941-83) US 6-ft-1-in	1,400
Michael Walker ( <i>née</i> Francis Lang) (b 1934) US 6 ft 2 in	1,187 (1)
Robert Earl Hughes (1926-58) US 6 ft ½ in	1,069
Mills Darden (1798-1857) US 7 ft 6 in	1,020
"Big Tex" (1902 -fl 1956) US 6 ft 1 in	924
John Hanson Craig (1856-94) US 6 ft 5 in	907 (3)
Arthur Knorr (1914-60) US 6 ft 1 in	900 (4)
T. J. Albert Jackson (b 1941) Canton, Miss 6 ft 4 in	898 (5)
Albert Pernitsch (b 1956) <i>Grafkorn</i> , Austria 5 ft 9 in	880 (6)
Ron High (b 1953) Chicago	853 (7)
T. A. Valenzuela (1895-1937) Mexico 5 ft 11 in	850
Chief Wise Owl (b 1939) US 5 ft 4 in	850 (2)
Joseph Schorr (1934-80) US 6 ft 4 in	846
<ol style="list-style-type: none"> <li>1. Peak weight 1971. Reduced to 369 lb by Feb 1980.</li> <li>2. Weight not independently corroborated. Winner of National Enquirer "Biggest Belly" contest announced Sept 9, 1986. Waist reputedly 111 in.</li> <li>3. Won \$1,000 in "Bonny Baby" contest in NYC in 1858.</li> <li>4. Gained 300 lb in last 6 months of his life.</li> <li>5. Born Kent Nicholson, 22 lb.</li> <li>6. His left arm is tattooed "Nobody is perfect." Girth 78¾ in in July 1984.</li> <li>7. Reduced by dieting to 340 lb in 16 months by Jan 6, 1987.</li> </ol>	

## Slimming

The greatest recorded slimming feat was that of William J. Cobb (b 1926), *alias* "Happy Humphrey," a professional wrestler of Augusta, Ga. It was reported in July 1965 that he had reduced from 802 lb to 232 lb, a loss of 570 lb, in 2½ years. His waist measurement declined from 101 to 44 in. In Oct 1985, "Happy" reported he was back to a normal 432 lb.

The US circus fat lady Mrs Celesta Geyer (b 1901), *alias* Dolly Dimples, reduced from 553 lb to 152 lb 1950-51, a loss of 401 lb in 14 months. Her vital statistics diminished *pari passu* from 79-84-84 to a svelte 34-28-36. Her book "How I Lost 400 lb" was not a best seller. In Dec 1967, she was reportedly down to 110 lb.

By July 1979, Jon Brower Minnoch (see page 10) had reduced to 476 lb; if the peak weight quoted for him was authentic, this indicates



The greatest age attributed to fossils is for the skull "1470" discovered by Bernard Ngeneo at Koobi Fora, North Kenya. It is dated to 1.9 million years old and was reconstructed by Dr Meave Leakey (*née* Epps).

The earliest stone tools are abraded core choppers dating from c. 2.5 million years. They were found at Hadar, Ethiopia in 1976 by Helene Roche (France). Finger- (as opposed to fist-) held quartz dicers found by Roche close to the Hadar site by the Gona River are also dated to c. 2.5 million years.

The earliest *Homo erectus* (upright man), the species directly ancestral to *Homo sapiens*, was discovered by Kamoya Kimen on the surface at the site of Nariokotome III to the west of Lake Turkana, Kenya, in 1984. The skeleton of a 12-year-old boy is the most complete of this species ever found, only a few small pieces being missing.

The earliest evidence for the presence of man in the Americas could date from at least 50,000 bc or "more probably 100,000 bc" according to the late Dr Louis Leakey after the examination of some hearth stones found in the Mojave Desert, Calif, and announced in Oct 1970. The earliest human relic is a skull found in the area of Los Angeles, dated in Dec 1970 to be from 22,000 bc.

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### 3. LONGEVITY

#### Oldest Centenarian

No single subject is more obscured by vanity, deceit, falsehood and deliberate fraud than the extremes of human longevity. Extreme claims are generally made on behalf of the very aged rather than *by* them.

Many hundreds of claims throughout history have been made for persons living well into their second century and some, insulting to the intelligence, for people living even into their third. The facts are that centenarians surviving beyond their 113th year are of the extremest rarity and the present absolute limit of proven human longevity does not admit of anyone living to celebrate any birthday after their 120th.

It was announced in Feb 1984 that the 1982 census in China revealed only 2,450 centenarians of whom two thirds were women. In the US the mid-1983 figure was 32,000. Birth and death registration, however, became complete only in 1933 and was only 30.9% complete by 1915.

#### Oldest Authentic Centenarians

The greatest *authenticated* age to which any human has ever lived is a unique 120 years 237 days in the case of Shigechiyo Izumi of Asan, Tokunoshima Island, Japan. He was born on the island on June 29, 1865, and recorded as a 6-year-old in Japan's first census of 1871. He died at his home, a double-glazed bungalow, at 12:15 GMT on Feb 21, 1986 after developing pneumonia.

The oldest living person after Mr Izumi's death was 113-year-6-month-old Mrs Mamie Eva Keith (*née* Walter) (b Mar 22, 1873, d



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Norway	110	+	Maren Bolette Torp	Dec 21, 1876	fl. Mar 1987
Scotland (j)	109	14	Rachel MacArthur (Mrs)	Nov 26, 1827	Dec 10, 1936
Belgium	108	327	Mathilda Vertommen-Hellemans	Aug 12, 1868	July 4, 1977
Finland	108	198	Fanny Matilda Nystrom	Sept 30, 1878	fl. Apr 16, 1987
Germany (g)	108	128	Luise Schwarz	Sept 27, 1849	Feb 2, 1958
Iceland	108	45	Halldora Bjarnsdottir	Oct 14, 1873	Nov 28, 1981
Portugal (e)	108	+	Maria Luisa Jorge	June 7, 1859	fl. July 1967
Austria	108	+	Female		1975
Malaysia	106	+	Hassan Bin Yusoff	Aug 14, 1865	fl. Jan 1972
Luxembourg	105	228	Nicolas Wiscourt	Dec 31, 1872	Aug 17, 1978

Note: fl. is the abbreviation for *floruit*, Latin for he (or she) was living at the relevant date.

(a) Mrs Ellen Carroll died in North River, Newfoundland, Canada, Dec 8, 1943, reputedly aged 115 years 49 days.

(b) Mrs Susan Johanna Deporter of Port Elizabeth, South Africa, was reputedly 114 years old when she died Aug 4, 1954. Mrs Sarah Lawrence, Cape Town, South Africa, was reputedly 112 on June 3, 1968.

(c) London-born Miss Isabella Shephard was allegedly 115 years old when she died at St Asaph, North Wales, Nov 20, 1948, but her actual age was believed to have been 109 years 90 days. Charles Alfred Nuñez Arnold died in Liverpool, England, Nov 15, 1941, reputedly 112 years 66 days (based on a baptismal claim in London on Sept 10, 1829). Mrs Elizabeth Cornish (née Vesale), who was buried at Stratton, Cornwall, March 10, 1691 or 1692, was reputedly baptized on Oct 16, 1578, 113 years 4 months earlier.

(d) The 1900 US Census lists a Mark Thrash as age 77 in Walker County, Ga. If he was the man of that name who died on Dec 17, 1943 near Chattanooga, Tenn., then he survived for 121 years. Mrs Graham, ex-slave, died in Fayetteville, NC. Mrs Rena Glover Brailsford died in Summerton, SC, Dec 6, 1977, reputedly aged 118 years. Mrs Rosario Vasquez who died in California on Sept 2, 1980 was reputedly born in Sonora, Mexico, on June 3, 1866, which would make her 114 years 93 days. Claim has been made that Arthur Reed died in 1984 at age 123, but no evidence has been produced.

(e) Senhora Jesuina da Conceição of Lisbon was reputedly 113 years old when she died June 10, 1965.

(f) Thomas Peters was recorded to have been born on Apr 6, 1745 in Leeuwarden and died aged 111 years 354 days on Mar 26, 1857 in Amhem.

(g) In W Germany, an unnamed female died in 1979 aged 112 years and an unnamed male died in 1969, also aged 112 years.

(h) Snr Benita Medrana of Avila died on Jan 28, 1979, allegedly aged 114 years 335 days.

There are allegedly 21,700 centenarians in the USSR compared with 7,000 in the US. Of these, 21,000 are ascribed to the Georgian SSR, or one out of every 232 people. In July 1962 it was reported that 128, mostly male, resided in the one village of Medini.

(j) Lachlen MacDonald (d June 7, 1858) in Harris, Outer Hebrides, was recorded as being "110 years" on his death certificate.





## Oldest Mother

Medical literature contains extreme but unauthenticated cases of septuagenarian mothers such as Mrs Ellen Ellis, aged 72, of Four Crosses, Clwyd, Wales, who allegedly produced a stillborn 13th child May 15, 1776, in her 46th year of marriage. Many very late maternities are cover-ups for illegitimate grandchildren. The oldest recorded mother of whom there is satisfactory verification (provided by the doctor who attended her) was Mrs Ruth Alice Kistler (*née* Taylor), formerly Mrs Shepard (1899–1982), of Portland, Ore. She was born in Wakefield, Mass, June 11, 1899, and gave birth to a daughter, Suzan, in Glendale, Calif, Oct 18, 1956, when her age was 57 years 129 days.

## Quindecaplets

It was announced by Dr Gennaro Montanino of Rome that he had removed the fetuses of 10 girls and 5 boys from the womb of a 35-year-old housewife July 22, 1971. A fertility drug was responsible for this unique and unsurpassed instance of quindecaplets.

## "Siamese" Twins

Conjoined twins derived the name "Siamese" from the celebrated Chang and Eng Bunker (known in Thailand as Chan and In) born at Meklong, on May 11, 1811 of Chinese parents. They were joined by a cartilaginous band at the chest and married in Apr 1843 the Misses Sarah and Adelaide Yates of Wilkes County, NC, and fathered 10 and 12 children, respectively. They died within three hours of each other on Jan 17, 1874, aged 62.

## Multiple Great-Grandparents

The report in 1983 that Jane Kau Pung (1877–1982) had left 4 great-great-great-great-grandchildren has proved to be incorrect. She in fact proved to be one of many cases of great-great-great-grandparents. Of these cases the youngest person to learn that



their great-granddaughter had become a grandmother was Mrs Ann V. Weirick (1888-1978) of Paxtonville, Pa, who received news of her great-great-grandson Matthew Stork (b. Sept 9 1976) when aged, only 88. She died on Jan 6 1978.

## Lightest Twins

The lightest recorded birth weight for surviving twins is 2 lb 3 oz in the case of Mary (16 oz) and Margaret (19 oz) born to Mrs Florence Stimson of Peterborough, England, delivered by Dr Macaulay, Aug 16, 1931. Margaret is now Mrs M. J. Hurst.

## Oldest Twins

The chances of identical twins both reaching 100 are said to be one in 50 million. The oldest recorded twins were Eli and John Phipps, born Feb 14, 1803, in Affington, Virginia. Eli died at the age of 108 years 9 days Feb 23, 1911, in Hennessey, Okla, at which time John was still living, in Shenandoah, Iowa. Identical twins Mildred Widman Philippi and Mary Widman Franzini, born in St Louis, Mo, missed reaching their 105th birthday together, by 44 days, when Mildred died on May 4, 1985.

The oldest living twins are probably Allie Hill and Maggie Lambeth (*née* Grubb), who reside in Mountain Vista Health Park, Denton, NC, born on Jan 13, 1884, and who celebrated their 103rd birthday in 1987.

## Most Twins, Geographically

In Chungchon, South Korea, it was reported in Sept 1981 that there were unaccountably 38 pairs in only 275 families—the highest ratio ever recorded.

## Descendants

In polygamous countries, the number of a person's descendants soon becomes incalculable. The last Sharifian Emperor of Morocco, Moulay Ismail (1672-1727), known as "The Bloodthirsty," was reputed to have fathered a total of 525 sons and 342 daughters by 1703, and a 700th son in 1721.

In April 1984 the death was reported of Adam Borntrager, aged 96, of Medford, Wis, who had had 707 direct descendants of whom all but 32 were living. The total comprised 11 children, 115 grand, 529 great-grand and 20 great-great-grandchildren. The family is of the Amish-Mennonite sect who eschew cars, telephones, electric light, and higher education.

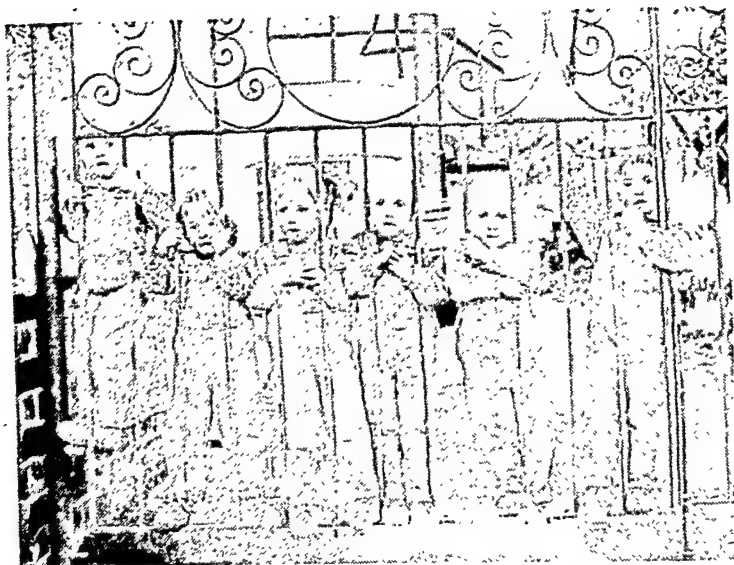
## Most Living Ascendants

Megan Sue Austin (b May 16, 1982) of Bar Harbor, Maine, had a full set of grandparents and great-grandparents and five great-great-grandparents making 19 direct ascendants.

## Family Immortality

Mr and Mrs Thomas E. Eide of Estherville, Iowa, have 141 descendants without a single death in the family (or their spouses) in 61 years of marriage, 1925-Mar 31, 1986. Beatrice Eide (b 1905) has





**SEXTUPLETS:** The Walton girls, just prior to their third birthday, face the camera. Left to right: Hannah, Sarah, Kate, Lucy, Ruth and Jenny. Mother, Jane Walton of Liverpool, Eng, not shown. (*Camera Press*)

8 children, 34 grandchildren, 59 great-grandchildren, 3 great-great-grandchildren, who, with 37 spouses and ex-spouses have survived without incurring killing diseases or having accidents. (Since then the Eides have had 2 more grandchildren, but one daughter passed away on Oct 23, 1986.)

### Oldest Quadruplets

The world's oldest quads are the Ottman quads of Munich, W Germany—Adolf, Anne-Marie, Emma and Elisabeth. They celebrated their 74th birthday on May 5, 1986.

### Oldest Triplets

The longest-lived triplets on record were Faith, Hope, and Charity Caughlin, born Mar 27, 1868, in Marlboro, Mass. Mrs (Ellen) Hope Daniels was the first to die, Mar 2, 1962, when 93.

### Fastest Triplet Birth

The fastest recorded natural birth of triplets has been 2 minutes in the case of Mrs James E. Duck of Memphis, Tenn (Bradley, Christopher and Carmon) March 21, 1977.

### Longest Pregnancy

Claims up to 413 days have been widely reported, but accurate data are bedevilled by the increasing use of oral contraceptive pills, which





## Most Premature Birth

Ernestine Hudgins was born (weighing 17 oz) 18 weeks premature in San Diego, Calif, on Feb 8, 1983. This has been equaled by Alexander McGlade, born in Middlesbrough, Cleveland, Eng on May 20, 1986 at the same weight.

## Birth After Death

A woman who had been kept alive by breathing mechanically gave birth to a 3-lb 11-oz baby girl 84 days after she had had a seizure, the longest time a fetus has been carried in a clinically-dead mother and survived. The event occurred in Roanoke (Va) Memorial Hospital July 5, 1983.

## BABIES

### Heaviest Babies

The heaviest viable baby on record of normal parentage was a boy of 22 lb 8 oz born to Signora Carmelina Fedele of Aversa, Italy, in Sept 1955. Tying the record at 22 lb 8 oz, a boy named Sithandive was delivered by Caesarean section to Mrs Christina Samane on May 24, 1982, at Sipetu Hospital, Transkei, S Africa. He weighed 77 lb at 16 months, and 112 lb at age 5.

Mrs Anna Bates, *née* Swan, the 7-ft-5½-in Canadian giantess (see Tallest Couple), gave birth to a boy weighing 23 lb 12 oz (length 30 in) at her home in Seville, Ohio, on Jan 19, 1879, but the baby died less than 24 hours later. Her first child, an 18-lb girl (length 24 in), was stillborn when she was delivered in 1872.

On Jan 9, 1891, Mrs Florentin Ortega of Buenos Aires, Argentina, produced a stillborn boy weighing 25 lb.

In May 1939 a deformed baby weighing 29 lb 4 oz was born in a hospital at Effingham, Ill, but died two hours later from respiratory problems.

### Most Bouncing Baby

The most bouncing baby on record was probably James Weir (1819-21) whose headstone in the Old Parish Cemetery, Wishaw, Strathclyde, Scotland, lists him at 112 lb, 3 ft 4 in in height, and 39 in around the waist at the age of 13 months.

T.J. Albert Jackson (see Heaviest Living Man) claimed that he weighed 105 lb and stood 4 ft 1 in tall at the age of 12 months.

Brazil's "super-baby" Veridiano dos Santos (b 1978) weighed 143 lb aged 5, and 187 lb aged 7, with a 43-in waist.

Therese Parentean, who died in Rouyn, Quebec, Canada, aged 9, May 11, 1936, weighed 340 lb (cf. 378 lb for Robert Earl Hughes at 10 years of age).

### Lightest

The lowest birth weight recorded for a surviving infant, of which there is definite evidence, is 10 oz in the case of Mrs Marion Taggart *née* Chapman, born 6 weeks prematurely on June 5, 1938, in South Shields, northwest England. She was born unattended (length 12¼ in)



Hospital, died a few hours later. On Feb 23, 1952, it was reported that a 6 oz baby only 6½ in in length lived for 12 hours in a hospital in Indianapolis. A twin was stillborn.

### Earliest Test Tube Baby

Louise Brown (5 lb 12 oz) was delivered by Caesarean section from Lesley Brown, 31, in Oldham General Hospital, Lancashire, England, at 11:47 p.m. July 25, 1978. She was externally conceived on Nov 10, 1977.

### First Frozen Embryo Birth

A 5½-lb infant girl named Zoe was reported by the Associated Press on Apr 10, 1984 as having been born in Melbourne, Australia from an embryo that had been frozen. An ovum from the mother had been fertilized in a laboratory with her husband's sperm and then frozen for 2 months, before being implanted in the mother's uterus where it developed normally until delivery by Caesarean section.

### Coincidental Birth Dates

While July 4 is celebrated by 225 million Americans, it has special significance for the Williams family of Wilmington, NC. Ralph Bertram Williams IV was born on July 4, 1982, his father (same name, but III) was born on July 4, his grandfather (same name, but Jr) was born on July 4, and his great-grandfather (Sr) was born on July 4, 1876, exactly 100 years after the Declaration of Independence.

The only verified example of a family producing five single children with coincidental birthdays is that of Catherine (1952), Carol (1953), Charles (1956), Claudia (1961) and Cecilia (1966), born to Ralph and Carolyn Cummins of Clintwood, Va, all on Feb 20th. The random odds against five such births occurring singly on the same date would be 1 to 17,797,577,730—more than 3½ times the world's population.

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## 5. PHYSIOLOGY AND ANATOMY

### Longest Bones

The longest recorded bone was the *femur* of the 8-ft German giant Constantine, who died in Mons, Belgium, March 30, 1902, aged 30. It measured 29.9 in. The *femur* of Robert Wadlow, the tallest man ever recorded, measured an estimated 29½ in.

### Smallest Waists

Queen Catherine de Medici (1519-89) decreed a standard waist measurement of 13 in for ladies of the French court. This was at a time when females were more diminutive. The smallest recorded waist among women of normal stature in the 20th century is a reputed 13 in in the cases of the French actress Mlle Polaire (1881-1939) and Mrs Ethel Granger (1905-82) of Peterborough, England, who reduced from a natural 22 in over the period 1929-39.



## Largest Brains

The brain of an average adult male (*i.e.*, 20–55 years) weighs 3 lb 2.2 oz, falling to 3 lb 1.1 oz. The heaviest brain ever recorded was that of a 50-year-old male which weighed 4 lb 8.29 oz, reported by Dr Thomas F. Hegert, chief medical examiner for District 9, Fla, on Oct 23, 1975.

Prof Marian Diamond of the Univ of Calif, at Berkeley, announced on Feb 13, 1985 that the neuron-to-glial-cell ratio in Section 39 of the brain of Albert Einstein (1879–1955) was 1.12 as opposed to the standard 1.936, a difference of 72.8.

## Human Memory

Bhandanta Vicitsara recited 16,000 pages of Buddhist canonical texts in Rangoon, Burma, in May 1974. Gou Yan-ling, 26, has memorized more than 15,000 telephone numbers in Harbin, China, according to the Xinhua News Agency. Rare instances of eidetic memory, the ability to reproject and thus “visually” recall material, are known to science.

Creighton Carvello memorized a random sequence of 6 separate packs of cards (312) on a single sighting with only 4 errors including an all correct straight run of 139 cards at the New Marske Institute Club, Cleveland, Eng on Mar 21, 1985. On July 21, 1985, on the Kyoto (Japan) TV *Guinness* program, he achieved the rarer accomplishment of only 24 errors with 6 packs shuffled together.

## Human Computer

The fastest extraction of a 13th root from a 100-digit number is in 1 min 28.8 sec by Willem Klein (b 1914, Netherlands, k Aug 1, 1986) on Apr 7, 1981 at the National Laboratory for High Energy Physics (KEK), Tsukuba, Japan.

## Highest IQ

Intelligence quotients or IQ's comprise the subject's mental age divided by his chronological or actual age multiplied by 100, so that an 8-year-old more gifted than an average 16-year-old would have an IQ of  $\frac{16}{8} \times 100 = 200$ . *The highest childhood score has been achieved by Marilyn Mach-vos Savant of St. Louis, Mo, who as a 10-year-old achieved a ceiling score for 23-year-olds, thus giving her an IQ of 228.*

In adult High IQ clubs, admission requirements are not on IQ points but are gauged in percentiles. An IQ exhibited by 1 person in 10,000 for instance coincides with 158 on the Stanford-Binet scale but 187 on the Cattell scale. The most elite ultra-high IQ society is the Mega Society with 26 members with percentiles of 99.9999 or 1 in a million. The topmost scorer in the Mega admission test, devised by its founder Ronald K. Hoeflin, has been 46 out of 48 by Marilyn Mach vos Savant superseding the 43 of Jeff Ward.

The 3 members who have scored 197 are Christopher Philip Harding (b Keynsham, England, 1944) of Rockhampton, Australia; Dr Ferris Eugene Alger (b Des Moines, Ia, 1913) of New Hope, Pa, and Dr Johannes Douglas Veldhuis (b Hamilton, Ont, Canada, 1949) of Charlottesville, Va.





**LONGEST FINGER NAILS:** Shridhar Chillal of India is proud of his left hand with its nails that total 158 in in length. However, it's a handicap in his job as a photographer, and as for typing, that's impossible. He keeps them covered when he sleeps, too.



**LONGEST NECKS:** The Padaung women of Burma are much admired for the length of their necks. The copper coils, however, make neck turning difficult and the muscles tend to atrophy. (*Planet News*)

**LONGEST HAIR CONTENDER:** Diane Witt of Worcester, Mass, last cut her hair 15 years ago and now it's 8½ ft long and growing which is rare, because hair often stops growing at 3 ft.







telli, Rome, Italy, a religious dentist, conserved all the teeth he extracted in three enormous boxes during the time he exercised his profession from 1868 to 1904. In 1903, the number was counted and found to be 2,000,744 teeth, indicating an average of 185 a day.

### **Strongest Bite**

In August 1986, Richard Hofmann (b 1949) of Lake City, Fla, achieved a bite strength of 975 lb for approx 2 sec in a research test using a gnashodynameter at the College of Dentistry, Univ of Fla. This figure is over 6 times normal biting strength.

### **Most Valuable Tooth**

In 1816 a tooth belonging to Sir Isaac Newton (1643-1727) was sold in London for £730 (now \$1,100). It was purchased by a nobleman who had it set in a ring which he wore constantly.

### **Earliest False Teeth**

From discoveries made in Etruscan tombs, partial dentures of bridge-work type were being worn in what is now Tuscany, Italy, as early as 700 bc. Some were permanently attached to existing teeth and others were removable.

### **Color Sensitivity**

The unaided human eye, under the best possible viewing conditions, comparing large areas of color, in good illumination, using both eyes, can distinguish 10,000,000 different color surfaces.

About 7.5 percent of men and 0.1 percent of women are color blind. The most extreme form of color blindness, monochromatic vision, is very rare. The highest rate of red-green color blindness exists in Czechoslovakia and the lowest rate among Fijians and Brazilian Indians.

### **Leading Cause of Death**

The leading cause of death in industrialized countries is arteriosclerosis (thickening of the arterial wall), which underlies much coronary and cerebrovascular disease.

### **Longest Coma**

The longest recorded coma was that of Elaine Esposito (b Dec 3, 1934) of Tarpon Springs, Fla. She never stirred after an appendectomy on Aug 6, 1941, when she was six, in Chicago. She died on Nov 25, 1978, aged 43 years 357 days, having been in a coma for 37 years 111 days.

### **Heart Stoppage**

The longest recorded heart stoppage is a minimum of 3 hours 40 min in the case of Miss Jean Jawbone, 20, who was revived by a team of 26, using peritoneal dialysis, in the Health Sciences Centre, Winnipeg, Manitoba, Canada, Jan 18, 1977.

"Mammalian diving effect" can be triggered in humans falling into water cooler than 70° F.

Allen Smith, aged 2, on Oct 9, 1986 fell into the swollen waters of



## Triple Transplant

The first triple transplant (heart-lung-liver) took place on Dec 17, 1986 at Papworth Hospital, Cambridge, Eng, when Mrs. Davina Thompson (b Feb 28, 1951) underwent surgery for 7 hours by a team of 15, headed by chest surgeon Mr John Wallwork and Prof Sir Roy Calne.

## Highest Body Temperature

Sustained body temperatures of much over 109° F are normally incompatible with life, although recoveries after readings of 111° F have been noted. Marathon runners in hot weather attain 105.8° F.

Willie Jones, a 52-year-old black, was admitted to Grady Memorial Hospital, Atlanta, Ga, on July 10, 1980 with heat stroke on a day when the temperature reached 90° F with 44% humidity. His temperature was found to be 115.7° F. After 24 days he was discharged "at prior baseline status."

## Lowest Body Temperature

There are three recorded cases of patients surviving body temperatures as low as 60.8° F. Dorothy Mae Stevens (1929-74) was found in an alley in Chicago Feb 1, 1951. Vickie Mary Davis of Milwaukee, Wis, at age 2 years 1 month was admitted to the Evangelical Hospital, Marshalltown, Iowa, Jan 21, 1956 after having been found unconscious on the floor of an unheated house. Michael Trode aged 2, was found in the snow near his home in Milwaukee, Wis, on Jan 19, 1985. All three had a temperature of 60.8° F, when found. People may die of hypothermia with body temperatures of 95° F.

## Most Acute Vision

Dentist Veronica Seider of Stuttgart, W Germany (b 1951) possesses a visual acuity 20 times better than average. She can identify people at a distance of more than a mile, and specialises in microwriting without the use of artificial aids. In one test she examined what seemed to be a thread of cotton and then announced that it was actually four threads twisted tightly together. Magnification proved her right.

## Commonest Diseases

The commonest non-contagious disease is periodontal disease, such as gingivitis, which afflicts some 80% of the US population. In Great Britain 13% of the people have lost all their teeth before reaching 21. During their lifetime few completely escape its effects.

Infestation with pinworm (*Enterobius vermicularis*) approaches 100% in some areas of the world.

The commonest contagious illness in the world is coryza (acute nasopharyngitis) or the common cold.

## Highest Mortality

Rabies in humans has been regarded as uniformly fatal when



## Sword "Swallowing"

Edward Benjamin, known as Count Desmond (b July 30, 1941, Binghamton, NY), swallowed thirteen 23-in-long blades to below his xiphisternum and injured himself in the process. *This category has now been retired and no further claims will be entertained.*

## Pulse Rates

A normal adult pulse rate is 70–72 beats per min at rest for males, and 78–82 for females. Rates increase to 200 or more during violent exercise or drop to as low as 12 in the extreme case of Dorothy Mae Stevens (see *Lowest Body Temperature*) and Jean Hilliard (b 1962) of Fosston, Minn on Dec 20, 1980.

## Largest Tumor

The largest tumor ever recorded was Spohn's case of an ovarian cyst weighing 328 lb from a woman in Tex in 1905. She recovered fully.

## Largest Stone

The largest stone or vesical calculus reported in medical literature was one of 13 lb 14 oz removed from an 80-year-old woman by Dr Humphrey Arthure at Charing Cross Hospital, London, on Dec 29, 1952.

## Pill Taking

The highest recorded total of pills swallowed by a patient is 500,689 from June 9, 1967 to Jan 1, 1986, by C. H. A. Kilner (b 1926) of Bindura, Zimbabwe, following a successful operation to remove a cancerous pancreas on May 26, 1966.

## Longest Survival in Iron Lung

The longest recorded survival by an iron lung patient is 37 years 58 days by Mrs Laurel Nisbet (b Nov 17, 1912) of La Crescenta, Calif, who was in an iron lung continuously from June 25, 1948, to her death on Aug 22, 1985.

## Earliest Anesthesia

The earliest recorded operation under general anesthesia was for the removal of a cyst from the neck of James Venable by Dr Crawford Williamson Long (1815–78), using diethyl ether ( $C_2H_5)_2O$ , in Jefferson, Ga, on Mar 30, 1842.

## Fastest Amputation

The shortest time recorded for the amputation of a leg in the pre-anesthetic era was 13 to 15 sec by Napoleon's chief surgeon, Dominique Larrey. There could have been no ligation.

## Most Operations by a Doctor

Dr Robert B. McClure (b 1901) of Toronto, Canada performed a career total of 20,423 major operations 1924–78.



## Hiccoughing

The longest recorded attack of hiccoughs is that which afflicted Charles Osborne (b 1894) of Anthon, Iowa, from 1922 for 65 years. He contracted it when slaughtering a hog and hiccoughed about 430 million times in the interim period. He was unable to find a cure; but led a reasonably normal life in which he had two wives and fathered eight children. He did admit, however, that he could not keep in his false teeth. In July 1986, his rate went up to 20–25 times from 10 hics per min in 1985, and an earlier high of 40.

## Sneezing

The most chronic sneezing fit ever recorded is that of Donna Griffiths (b 1969) of Pershore, England. She started sneezing on Jan 13, 1981, and surpassed the previous duration record of 194 days on July 27, 1981. She sneezed an estimated million times in the first 365 days. She achieved her first sneeze-free day on Sept 16, 1983—the 978th day.

The highest speed at which expelled particles have been measured to travel is 103.6 mph.

## Yawning

In Lee's case, reported in 1888, a 15-year-old female patient yawned continuously for a period of five weeks.

## Loudest Snore

The highest measured sound level recorded by any chronic snorer is a peak of 87.5 decibels at Hever Castle, Kent, Eng, in the early hours of June 28, 1984.

## Voice

The highest and lowest recorded notes attained by the human voice before this century were a staccato E in *alt-altissimo* (e" ") by Ellen Beach Yaw (US, 1869–1947) in Carnegie Hall, New York City, Jan 19, 1896, and an A1 (55 Hz cycles per sec) by Kaspar Foster (1617–73).

Madeleine Marie Robin (1918–60), the French operatic coloratura, could produce and sustain the B flat above high C in the Mad Scene in *Lucia di Lammermoor*.

Since 1950 singers have achieved high and low notes far beyond the hitherto accepted extremes. Notes, however, at the bass and treble extremities of the register tend to lack harmonics and are of little musical value.

Fräulein Marita Günther, trained by Alfred Wolfsohn, has covered the range of the piano from the lowest note A- to c' " ". Of this range of 7¼ octaves, 6 octaves are considered to be of musical value.

Roy Hart, also trained by Wolfsohn, has reached notes below the range of the piano. Barry Girard of Canton, Ohio, in May 1975 reached the e (4,340 Hz) above the piano's top note.

The highest note put into song is G<sup>iv</sup> first occurring in *Popoli di Tessaglia* by Mozart.

The lowest vocal note in the classical repertoire is in Mozart's *Il Seraglio* by Osmin who descends to low D (73.4 Hz). Dan Britton





period. Raymond Glendenning (1907–74), the BBC horse-racing commentator, once spoke 176 words in 30 seconds while reporting a greyhound race. In public life the highest speed recorded is a 327-words-per-min burst in a speech made in Dec 1961, by John Fitzgerald Kennedy (1917–63), then President. Tapes of attempts to recite Hamlet's 262-word soliloquy in under 24 sec (655 wpm) have proved indecipherable.

Results of tests by a radio station in Boston on John Moschitta in Mar 1983 at a rate of 534 in 58 sec or 552 words per min were intelligible.

## **Fasting**

Most humans experience considerable discomfort after an abstinence from food for even 12 hours, but this often passes off after 24–48 hours. Records claimed without unremitting medical surveillance are inadmissible.

The longest period for which anyone has gone without solid food is 382 days by Angus Barbieri (b 1940) of Tayport, Fife, Scotland, who lived on tea, coffee, water, soda water and vitamins from June 1965 to July 1966 in Maryfield Hospital, Dundee, Angus, Scotland. His weight declined from 472 lb to 178 lb.

The longest recorded case of survival without food *and* water is 18 days by Andreas Mihavecz, 18, of Bregenz, Austria, who was put in a holding cell April 1, 1979, in a local government building in Höchst, Austria, but was totally forgotten by the police. On April 18, 1979, he was discovered close to death, having had neither food nor water. He had been a passenger in a car crash.

## **Hunger Strike**

The longest recorded hunger strike was 385 days from June 28, 1972 to July 18, 1973 by Denis Galer Goodwin in Wakefield Prison, W Yorkshire, Eng, protesting his innocence of a rape charge. He was force fed by tube orally.

The longest recorded hunger strike without force feeding was one of 94 days by 9 men in Cork Prison, Ireland, from Aug 11 to Nov 12, 1920. These 9 survivors owed their lives to expert medical attention and an appeal by the nationalist leader, Arthur Griffith.

## **Longest Dream**

Dreaming sleep is characterized by rapid eye movements (known as REM), discovered in 1953 by William Dement of the University of Chicago. The longest recorded period of REM is 2 hours 23 min, set by Bill Carskadon on Feb 15, 1967, at the Department of Psychology, University of Illinois, Chicago. His previous sleep had been interrupted.

In July 1984 The Sleep Research Centre, Haifa, Israel, recorded nil REM in a 33-year-old male who had a shrapnel brain injury.

## **Isolation**

The longest period for which any volunteer has been able to withstand total deprivation of all sensory stimulation (sight, hearing and touch) is 92 hours, recorded in 1962 at Lancaster Moor Hospital, Eng.



water-braked rocket sled by Eli L. Beeding, Jr., at Holloman Air Force Base, NM, May 16, 1958. He was put in the hospital for three days.

A man who fell off a 185-ft cliff survived a *momentary* g force of 209 in decelerating from 68 mph to stationary in 0.015 sec.

In a crash, race car driver David Purley survived a deceleration from 108 mph to zero in 26 in at the Silverstone circuit, Northamptonshire, England, July 13, 1977, which involved a force of 179.8 g. He suffered 29 fractures, 3 dislocations and 6 heart stoppages.

A land diver of Pentecost Island, New Hebrides, dove from a platform 81 ft 3 in high on May 15, 1982 for a TV show. He had liana vines attached to his ankles, his body speed was 50 ft/sec (34 mph) and the force of the jerk transmitted a momentary g force in excess of 110.

## Motionlessness

The longest recorded time that anyone was involuntarily made to stand at attention was 132 consecutive hours without food or water while a prisoner of the Japanese in Osaka from 8 a.m. Aug 15 until 8 p.m. Aug 20, 1944, by Everett D. Reamer (b 1923) of Havasu City, Ariz. Whenever he slumped, he was beaten; finally he dropped to the ground.

The longest that anyone has continuously remained motionless is 24 hours by William Fuqua at Glendale, Calif, on May 17-18, 1985 while sitting on a motorcycle.

An Indonesian teacher named Sunardi (b 1960) continuously *stood* motionless for 15 hours 25 sec on July 21, 1986 at a Motionlessness Festival in Semarang, Indonesia.

## Electric Shock

People in aircraft in thunder clouds may be at 30 million volts relative to the earth without harm. In some "bare hand" laboratory work in France experimenters in insulated cabins have experienced 5 million volts.

People walking on nylon carpets on dry days may go up to 10,000 volts relative to earth and yet experience only mild shocks. Contacts with exposed high tension power lines with system voltages of 765,000 have occurred in the US. A person in contact with earth via ladders, dinghy masts, crane jibs, etc, normally suffers instant death due to a heavy current arc or flashover flowing through the body. That shocks received from high tension cables by Brian Latasa (230,000 volts in Griffith Park, Los Angeles on Nov 9, 1967) and Harry F. McGrew (340,000 volts in Huntington Canyon, Utah, on Oct 7, 1977) were non-lethal underlines their idiosyncratic nature when compared with the mere 2,500 volts used since 1890 in judicial electrocution.

## Underwater Duration

The record for voluntarily staying underwater is 13 min 42.5 sec by Robert Foster, aged 32, an electronics technician of Richmond, Calif, who stayed under 10 ft of water in the swimming pool of the Bermuda Palms at San Rafael, Calif, on March 15, 1959. He hyperventilated with oxygen for 30 min before his descent. *It must be stressed that record-breaking of this kind is extremely dangerous.*



## Highest Temperature Endured

The highest dry-air temperature endured by naked men in US Air Force experiments in 1960 was 400° F and for heavily clothed men 500° F. (*Steaks require only 325° F.*) Temperatures of 284° F have been found quite bearable in sauna baths.

## Fire-Walking

The highest temperature recorded by a pyrometer for the coals in any fire-walk is 1,494° F by "Komar" (Vernon E. Craig) of Wooster, Ohio, at the International Festival of Yoga and Esoteric Sciences, Maidenhead, England, on Aug 14, 1976.

Thirty five people from the Sawau tribe on the island of Beqa, Fiji, participated in a fire-walk with the temperature over 1,000° F on May 18, 1982. There is an annual fire-walk during the feast of St Constantine each May in Aghia Eleni, northern Greece.

## Fire-Eating

Reg Morris (GB) on Nov 5, 1983, blew a flame from his mouth to a distance of 27 ft igniting a bonfire at the Castle Working Men's Club, Brownhills, Walsall, W Midlands, Eng.

M. Wendroff, known as Phenious Top of Dunnellon, Fla, extinguished 18,320 torches of flame in his mouth in 2 hours at the Foodway Supermarket in his hometown on Oct 4, 1986.

Sipra Ellen Lloyd set a female record of 8,357 at Port Lonsdale, Vic, Australia on July 26, 1986. *Fire-eating is potentially a highly dangerous activity.*





**MOST VALUABLE:** ▲ Killer whales like "Orky" of Marineland of the Pacific, Palos Verdes, Calif, are valued at about \$2 million per pair.



**TALLEST ANIMAL:** ► George, the tallest giraffe in captivity, along with his friends, licked the telephone wires that ran past his pen, disrupting the system.

**GIANT PANDA:** The most costly zoo animal. One cub in the Madrid (Spain) Zoo is valued at \$1.4 million. The one pictured here is in the San Diego (Calif) Zoo. ▼







## Commonest Animal

It is estimated that man shares the earth with  $3 \times 10^{33}$  (3 followed by 33 zeros) other living things. The number of nematode sea-worms has been estimated at  $4 \times 10^{25}$ . The house mouse (*Mus musculus*) is found on all continents.

## Largest Concentration of Animal Life

The largest single concentration of animals ever recorded was an enormous swarm of krill (*Euphausia superba*) estimated to weigh 10 million tons tracked by American scientists off Antarctica in Mar 1981. The swarm was so dense it equaled about one-seventh of the world's yearly catch of fish and shellfish.

## Rarest Animal

A number of mammals are known only from a single (holotype) specimen. An example is Garrido's hutia (*Capromys garridoi*), a rodent, known only from a single specimen collected on the islet of Cayo Maja off southern Cuba in Apr 1967.

The Thylacine or Tasmanian tiger (*Thylacinus cynocephalus*), feared extinct since the last captive specimen died in Beaumaris Zoo, Hobart, on Sept 7 1936, was rediscovered in July 1982 when a wildlife ranger saw one of these predatory marsupials in the spotlight of his parked car. Since then, however, there have been no more positive sightings.

The rarest marine mammal is Longman's beaked whale (*Indopacetus pacificus*), which is known only from two skulls. The type specimen was discovered on a beach near MacKay, Queensland, Australia, in 1922, and the second near Mogadiscio, Somalia, E. Africa, in 1955.

## Longest Gestation

The viviparous amphibian Alpine black salamander (*Salamandra atra*) can have a gestation period of up to 38 months at altitudes above 4,600 ft in the Swiss Alps, but this drops to 24–26 months at lower altitudes.

## Fastest and Slowest Growth

The fastest growth in the animal kingdom is that of the blue whale calf. A barely visible ovum weighing a fraction of a milligram (0.000035 of an ounce) grows to a weight of c. 29 tons in 22¾ months, made up of 10¾ months gestation and the first 12 months of life. This is equivalent to an increase of 30,000 millionfold.

The slowest growth in the animal kingdom is that of the deep-sea clam (*Tindaria callistiformis*) of the North Atlantic, which takes an estimated 100 years to reach a length of 0.31 in (8 mm).

## Lowest Blood Temperature

The lowest mammalian blood temperature is that of the spiny anteater (echidna), (*Tachyglossus aculeatus*), a monotreme found in Australia and New Guinea, with a normal range of 22.2°–24.4° C. The ice worm of Alaska has an internal temperature of 14° F.



## Highest g Force

The highest force encountered in nature is the 400 g *averaged* by the Click beetle *Athous haemorrhoidalis* (a common British species) when "jack-knifing" into the air to escape predators. One example measuring 0.47 in in length and weighing 0.00014 oz which jumped to a height of 11¾ in was calculated to have "endured" a peak brain deceleration of 2300 g at the end of the movement.

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## 1. MAMMALS (MAMMALIA)

### Largest and Heaviest Animal

The blue whale (see details on page 46) holds the record.

Blue whales inhabit the colder seas and migrate to warmer waters in winter for breeding. Observations made in the Antarctic in 1947–8 showed that a blue whale can maintain speeds of 20 knots (23 mph) for 10 minutes when frightened. This means a 90-ft blue whale traveling at 20 knots would develop 520 hp. Newborn calves measure 21–28.5 ft long and weigh up to 3.3 tons.

It has been estimated that there were about 12,000 blue whales living throughout the oceans in 1986 as a result of overfishing—compared to a peak estimate of about 220,000 at the start of the 20<sup>th</sup> century.

The species has been protected *de jure* since 1967 although non-member countries of the International Whaling Commission (e.g. Panama and Taiwan) are not bound by this agreement. A worldwide ban on commercial whaling came into effect in 1986, but Iceland, S Korea, Norway and the Philippines are still killing whales.

### Fastest Marine Animal

The fastest is the killer whale (*Orcinus orca*). On Oct 12, 1958, a bull measuring 20–25 ft in length was timed at 30 knots (34.5 mph) in the eastern Pacific.

Speeds of up to 30 knots also have been reported for short bursts by Dall's porpoise (*Phocoenoides dalli*).

### Deepest Dive

The greatest *recorded* depth to which a whale has dived is 620 fathoms (3,720 ft) by a 47-ft bull sperm whale (*Physeter macrocephalus*) found with his jaw entangled with a submarine cable running between Santa Elena, Ecuador, and Chorillos, Peru, Oct 14, 1955. At this depth he withstood a pressure of 1,680 lb per sq in of body surface.

On Aug 25, 1969, another bull sperm whale was killed 100 miles south of Durban, South Africa, after it had surfaced from a dive lasting 1 hour 52 min, and inside its stomach were found two small sharks which had been swallowed about an hour earlier. These were later identified as *Scymnodon* sp., a species found only on the sea floor. At this point from land the depth of water is in excess of 1,646 fathoms (10,476 ft) for a radius of 30–40 miles, which now suggests that the



## Slowest and Sleepiest Mammal

The slowest-moving land mammal is the ai or three-toed sloth (*Bradypus tridactylus*) of tropical America. The average ground speed is 6–8 ft per min (0.068 to 0.098 mph), but in the trees it can “accelerate” to 15 ft per min (0.170 mph). (Compare these figures with the 0.03 mph of the common garden snail and the 0.17 mph of the giant tortoise.)

The slowest swimming marine mammal is the sea otter (*Enhydra lutris*) which has a top speed of c. 6 mph. Some armadillos (*Dasypodidae*), opossums (*Didelphidae*) and sloths (*Bradypodidae*) spend up to 80 percent of their lives sleeping or dozing.

## Largest Herds

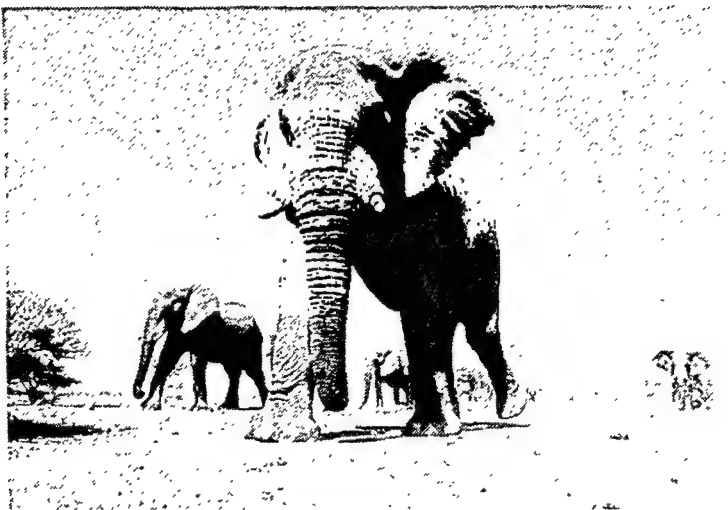
The largest herds on record were those of the South African springbok (*Antidorcas marsupialis*) during migration across the plains of the western parts of southern Africa in the 19th century. In 1849, Sir John Fraser of Bloemfontein observed a herd that took three days to pass through the settlement of Beaufort West, Cape Province. Another herd seen in the same province in 1888 was estimated to contain 100 million head, although 10 million is probably a more realistic figure. A herd estimated to be 15 miles wide and more than 100 miles long was reported from Karree Kloof, Orange River, South Africa, in July 1896.



“COOLEST” MAMMAL: The spiny anteater, from Australia and New Guinea, has the lowest blood temperature of any mammal. This one is a baby. ▲

SLOWEST MAMMAL: The ai or 3-toed sloth moves on the ground at 6–8 ft per min (or 4 mi per day). ◀





**HERD OF LARGEST LAND ANIMALS:** These African elephants are enjoying life in the Etosha National Park, Namibia, on the world's largest zoological reserve—38,427 sq mi. (Photo: Jen and Des Bartlett/Bruce Coleman Ltd)

(*Bos grunniens*), of Tibet and the Szechwanese Alps, China, which occasionally climbs to an altitude of 20,000 ft when foraging.

### Largest Carnivore

Unconfirmed weights of over 2,000 lb have been reported for the polar bear (*Ursus maritimus*), but the average adult male weighs 850–900 lb and measures 7¾ ft nose to tail. In 1960 a polar bear allegedly weighing 2,210 lb before skinning was shot at the polar entrance to Kotzebue Sound, northwest Alaska. The mounted specimen has a standing height of 11 ft 1¼ in.

### Smallest Carnivore

The smallest living carnivore is the least weasel (*Mustela rixosa*), also called the dwarf weasel, which is circumpolar in distribution. Four races are recognized, the smallest of which is the *M. r. pygmaea* of Siberia. Mature specimens have an overall length (including tail) of 6.96–8.14 in and weigh between 1¼ and 2½ oz.

### Largest Marine Carnivore

The largest toothed mammal ever recorded is the sperm whale (*Physeter macrocephalus*), also called the cachalot. The largest specimen ever to be measured accurately was a bull 67 ft 11 in long captured off the Kurile Islands, in the northwest Pacific, by a USSR whaling fleet in the summer of 1950.

### Largest Feline

The largest member of the cat family (Felidae) is the protected





## Fastest and Deepest Pinnipeds

The highest speed measured for a pinniped is a 25-mph spurt for a California sea lion (*Zalophus californianus*). The deepest dive recorded for a pinniped is 2,067 ft by a female northern elephant seal (*Mirounga angustirostris*) off Ano Nuevo Point, Calif, on Mar 1, 1983. At this depth, the seal withstood a pressure of 919 lb per sq in of body area.

## Most Abundant Pinniped

The most abundant species of pinniped is the crabeater seal (*Lobodon carcinophagus*) of Antarctica. In 1978 the total population was believed to be nearly 15 million.

## Rarest Pinniped

The last reliable sighting of the Caribbean or West Indian monk seal (*Monachus tropicalis*) was on Serranilla Bank off the coast of Mexico's Yucatan peninsula in 1952. In 1974 two seals were sighted near the southeast Bahamas, but a search in 1979 found nothing. It has been suggested that they may have been California sea lions which had escaped from captivity and have been recorded in the Gulf of Mexico on several occasions.

## Longest-Lived Pinniped

A female gray seal (*Halichoerus grypus*) shot at Shunni Wick in the Shetland Islands, Scotland, Apr 23, 1969 was believed to be at least 46 years old, based on a count of dentine rings. The captive record is an estimated 43 years for a bull gray seal "Jacob" held in Skansen (Stockholm Zoo) (1901-42).

## Smallest Pinniped

The smallest pinnipeds are the ringed seal (*Phoca hispida*) of the Arctic and the closely related Baikal seal (*P. sibirica*) of Lake Baikal and the Caspian seal (*P. caspica*) of the Caspian Sea, USSR. Adult specimens (males) measure up to 5 ft 6 in in length and reach a maximum weight of 280 lb. Females are about two-thirds this size.

## Largest and Smallest Bat

The only flying mammals are bats (order Chiroptera), of which there are about 950 living species. The bat with the greatest wing span is the Bismarck flying fox (*Pteropus neohibernicus*) of the Bismarck Archipelago and New Guinea. One specimen preserved in the American Museum of Natural History has a wingspread of 5 ft 5 in, but some unmeasured bats probably reach 6 ft.

The smallest species of bat is the rare Kitti's hog-nosed or bumblebee bat.

## Highest Detectable Pitch

Because of their ultrasonic echolocation, bats have the most acute hearing of any land animal. Vampire bats (*Desmodontidae*) and fruit bats (*Pteropodidae*) can hear frequencies as high as 120-210 kHz.



The heaviest gorilla ever kept in captivity was a male of the mountain race named "N'gagi," who died in the San Diego Zoo, Calif, on Jan 12, 1944, aged 18 years. He scaled 683 lb at his heaviest in 1943, and weighed 636 lb at the time of his death. He was 5 ft 7¾ in tall and boasted a record chest measurement of 78 in.

### Rarest Primate

The rarest living primate is the broad-nosed gentle lemur (*Hap-lemur simus*) of Madagascar, which reportedly became extinct in the early 1970s. In 1986 a group consisting of 35 animals was discovered in a remote rain forest in the southeastern part of the island by an expedition from Duke University, Durham, NC.

### Most Valuable Furs

The highest-priced animal pelts are those of the sea otter (*Enhydra lutris*), also known as the Kamchatka beaver, which fetched up to \$2,700 each before their 55-year-long protection started in 1912. The protection ended in 1967, and at the first legal auction of sea otter pelts in Seattle, Wash, Jan 31, 1968, Neiman-Marcus, the famous Dallas department store, paid \$9,200 each for four pelts from Alaska. (The sea otter is the slowest swimming marine mammal.)

In May 1970 a Kojah (mink-sable cross) coat costing \$125,000 was sold by Neiman-Marcus to Welsh actor Richard Burton for his then wife, Elizabeth Taylor. In 1983 the most expensive full fur coat in NYC was \$100,000 for a Russian lynx on sale at Ben Kahn and Maximilian.

### Test-Tube Primate

The first non-human primate conceived in a laboratory dish is a female black baboon, born on July 25, 1983, just 6 months after fertilization at the Southwest Foundation for Research and Education in San Antonio, Tex. The date was coincidentally exactly 5 years after the birth of Louise Brown, first human test-tube baby. The baby baboon was named E.T. (for embryo transfer).

### Primate Strength

"Boma," a 165-lb male chimpanzee at the Bronx Zoo, NYC, in 1924 recorded a right-handed pull (feet braced) of 847 lb on a dynamometer (compare with 210 lb for a man of the same weight). On another occasion an adult female chimpanzee named "Suzette" (estimated weight 135 lb) at the same zoo registered a right-handed pull of 1,260 lb while in a rage. A record of a 100-lb chimpanzee achieving a two-handed dead lift of 600 lb with ease suggests that a male gorilla could, with training, raise 2,000 lb!

### Largest and Smallest Monkeys

The only species of monkey reliably credited with weights of more



## Longest-Lived Rodent

The greatest reliable age reported for a rodent is 27 years 3 months for a Sumatran crested porcupine (*Hystrix brachyura*) which died in the National Zoological Park, Washington, DC, on Jan 12, 1965.

## Rarest Antelope

The rarest antelope is the Arabian oryx (*Oryx leucoryx*) which has not been reported in the wild since 1972 when 3 were killed and 4 others captured on the Jiddat-al Harasis plateau, South Oman. On Jan 31, 1982, ten specimens, nine of them born and bred at San Diego Zoo, were released into the open desert in South Oman under the protection of a nomadic tribe. Since then there have been at least 15 live births, and two antelopes born in Oman have bred. Another release has also been carried out in Jordan.

## Largest Antelope

The largest of all antelopes is the rare giant eland (*Tragelaphus derbianus*) of West and Central Africa, which may surpass 2,000 lb. The common eland (*T. oryx*) of East and South Africa has the same shoulder height of up to 5 ft 10 in, but is not quite so massive, although there is one record of a 5 ft 5 in bull shot in Nyasaland (now Malawi) in c. 1937 which weighed 2,078 lb.

## Smallest Antelope

The smallest known antelope is the royal antelope (*Neotragus pygmaeus*) of West Africa. Mature specimens measure only 10–12 in at the shoulder, and weigh only 7–8 lb, which is the size of a large brown hare (*Lepus europaeus*). Salt's dik-dik (*Madoqua saltina*) of northeast Ethiopia and Somalia weighs only 5–6 lb when adult, but this species stands about 14 in at the withers.

## Oldest Antelope

The greatest reliable age recorded for an antelope is 25 years 4 months for an addax (*Addax nasomaculatus*) which died in the Brookfield Zoo, Chicago, on Oct 15, 1960.

## Oldest Deer

The greatest reliable age recorded for a deer is 26 years 8 months for a red deer (*Cervus elaphus scoticus*), which died in the Milwaukee Zoo, Wis, on June 28, 1954.

## Largest Deer and Antler Span

The largest deer is the Alaskan moose (*Alces alces gigas*). Adult bulls average 6 ft at the shoulder and weigh about 1,100 lb. A bull standing 7 ft 8 in at the withers and weighing 1,800 lb was shot in Sept 1897 in the Yukon Territory, Canada. Unconfirmed measurements of up to 8½ ft at the withers and 2,600 lb have been claimed.

The record antler span or "rack" is 78½ in. They were taken from a moose killed near the headwaters on the Stewart River in the Yukon in Oct 1897 and are now on display in the Field Museum, Chicago.



giving a combined weight of 465 lb, but their combined weight today is 440½ lb.

The greatest weight ever recorded for one elephant tusk is 258 lb for a specimen collected in Benin (formerly Dahomey), West Africa, and exhibited at the Paris Exposition in 1900.

### Longest Tusks

The longest recorded elephant tusks (excluding prehistoric examples) are a pair from Zaïre preserved in the National Collection of Heads and Horns, kept by the New York Zoological Society, Bronx Park. The right tusk measures 11 ft 5½ in along the outside curve and the left measures 11 ft. Their combined weight is 293 lb. A single tusk of 11 ft 6 in has been reported, but details are lacking. Ivory rose in market price from \$2.30 to \$34 per lb, 1970–80.

### Longest Horns

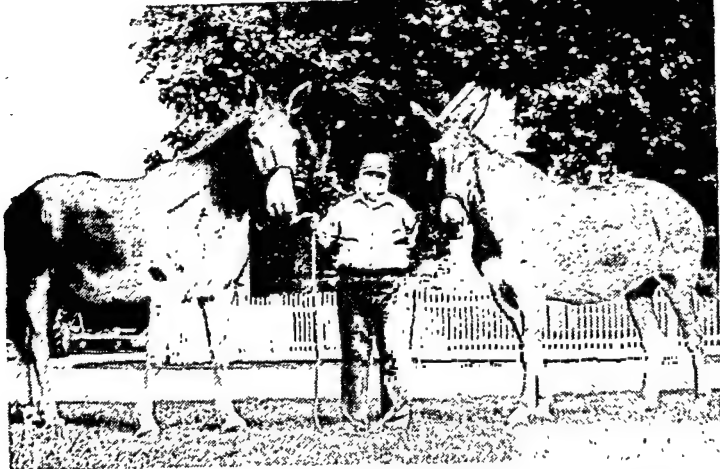
The longest horns grown by any living animal are those of the water buffalo (*Bubalus arnee* = *B. bubalis*) of India. One huge bull shot in 1955 had horns measuring 13 ft 11 in from tip to tip along the outside curve across the forehead. The longest single horn on record was one measuring 81¼ in on the outside curve found on a specimen of domestic Ankole cattle (*Bos taurus*) near Lake Ngami, Botswana, Africa.



**JUMPERS:** The Himalayan ibex escapes from hunters by leaping criss-cross down sheer cliffs, momentarily touching its hoofs down on rocky ledges. Movies of the ibex can be seen at the various Guinness Museums.







**LARGEST MULES:** The taller stands 20 hands high and weighs 2,200 lb. They belong to Herbert L. Mueller, Jr, of Columbia, Ill, who claims there are none larger.

Supreme," a purebred Belgian (Brabant) stallion (foaled Apr 12, 1928) owned by C. G. Good of Ogden, Iowa, which weighed 3,200 lb shortly before his death Sept 6, 1948, aged 20. He stood 19.2 hands (6 ft 6 in) and had a chest girth of 102 in.

In Apr 1973 the Belgian (Brabant) mare "Wilma du Bos" (foaled July 15, 1966), owned by Mrs Virgie Arden of Reno, Nev was reported to weigh 3,218 lb when in foal and being shipped from Antwerp. The mare stood 18.2 hands (6 ft 2 in) and normally weighed about 2,400 lb.

## Tallest Horse

The tallest documented horse on record was the shire gelding named "Sampson" (later renamed "Mammoth") bred by Thomas Cleaver of Toddington Mills, Bedfordshire, Eng. This horse (foaled in 1846) measured 21.2½ hands (7 ft 2½ in) in 1850 and was later said to have been 3,360 lb.

## Smallest Horse

The smallest breed of horse is the Falabella of Argentina which was developed over a period of 70 years by inbreeding and crossing a small group of undersized horses originally discovered in the southern part of Argentina. Most adult specimens stand less than 30 in and average 80-100 lb. The smallest mature horse bred by Julio Falabella of Recco de Roca before he died in 1981 was a mare which stood 15 in and weighed 26¼ lb.

Dr T. H. Hamison of the Circle Veterinary Center, Spartanburg, SC on Nov 30, 1975 certified that the stallion "Little Pumpkin" (foaled Apr 15, 1973) owned by J. C. Williams Jr of Della Terra Mini Horse Farm, Inman, SC stood 14 in and weighed 20 lb.

## Dog Population

In 1986 there were an estimated 51.6 million dogs in 38.7% of the households in the US.

In the city of Peking, China, all dogs even Pekingese are now banned because "pet-keeping has an adverse effect on social order and harms environmental sanitation." All pets had to be destroyed by Nov 1, 1983. A century before, Pekingese dogs were encouraged to sit on an emperor's lap and theft of a Pekingese was a crime punishable by death.

## Oldest Dogs

Most dogs live between 8 and 15 years and authentic records of dogs living over 20 years are rare. The greatest reliable age recorded for a dog is 29 years 5 months for an Australian cattle dog named "Bluey," owned by Les Hall of Rochester, Vic, Australia. The dog was obtained as a puppy in 1910 and worked among cattle and sheep for nearly 20 years. He was put to sleep Nov 14, 1939.

## Most Popular Dog Breeds

Cocker spaniels continued in 1986 to lead in new registrations (98,330) with the American Kennel Club. Poodles again were second (85,500). Labrador retrievers came in third (77,371) far ahead of golden retrievers (59,057), German shepherds (55,958), and chow chows (43,026).

## Dog Strength and Endurance

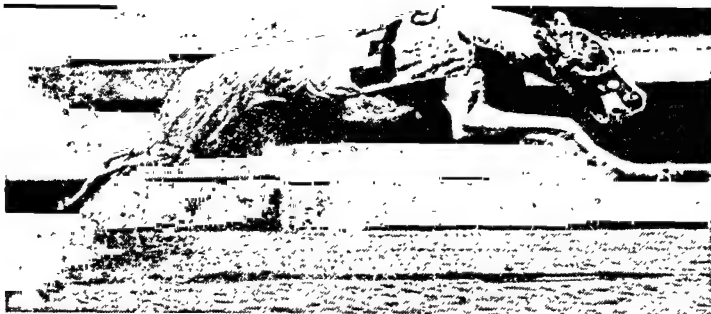
The greatest load shifted by a dog was 6,400½ lb of railroad steel pulled by a 176-lb St Bernard named "Ryettes Brandy Bear," at Bothell, Wash, July 21, 1978. The 4-year-old dog, owned by Douglas Alexander of Monroe, Wash, pulled the weight on a four-wheeled carrier across a cement surface for a distance of 15 ft in less than 90 sec. Ten days earlier the same dog had moved 6,600 lb, but was 5 in short of the 15 ft minimum distance when the 90 seconds were up.

The strongest dog in the world in terms of most proportionate weight hauled is "Barbara-Allen's Dark Hans," a 97-lb Newfoundland, who pulled 5,045½ lb (= 52 lb per lb bodyweight) across a cement surface at Bothell, Wash, July 20, 1979. The dog, owned by Miss Terri Dickinson of Kenmore, Wash, was only 12 months old when he made the attempt.

In the annual 1,049 (not 1,135) mile dog sled race from Anchorage to Nome, Alaska, the record time is 11 days 2 hours 5 min by Susan Butcher's team of dogs in the 1987 race. It was her second consecutive win. The dogs wear booties to protect their paws from ice.

## Heaviest Dog

The heaviest breed of domestic dog (*Canis familiaris*) is the St Bernard. The heaviest recorded example is "Benedictine Jr Schwarzwald Hof," owned by Thomas and Anne Irwin of Grand Rapids, Mich. He was whelped in 1982 and weighed 310 lb on Dec 3, 1984 (height at shoulder 39 in).



**MOST VALUABLE DOG:** A ▲ half-interest in "Marathon Hound" was sold for \$125,000 in Aug 1984. In his career, this greyhound set a world record in winnings of \$225,000. (*American Greyhound Track Operators*)



▲ **RAREST BREED:** A sled dog, the Chinook, from New Hampshire, with only 76 known, is now the rarest. (*Barbara A. Martin*)



▶ **FASTEST DOG BREED:** The Saluki is used in Arabia to hunt gazelles and has recorded a speed of 43 mph. (*Syndication International*)

Domesticated A



The largest legacy to a dog was by Miss Ella Wendel of NYC who reputedly "left" her standard poodle "Toby" \$75 million in 1931. Some say the amount was \$4 million to the ASPCA.

## Drug Sniffing

The greatest drug-sniffing dog on record was a golden retriever named "Trep" (whelped 1969), owned by former policeman Tom Kazo of Dade County, Miami, Fla. During the 5-year period 1973-77 "Agent K9-3," as he was also known, sniffed out \$63 million worth of narcotics. His owner said he would retire his pet, who could detect 16 different drugs, when he reached the magic \$100 million mark, but it is not known whether Trep achieved this target.

The only drug-sniffing dog with a 100-percent-arrest record was a German shepherd of the US Army called "General." During the period Apr 1974 to Mar 1976, this canine detective and his handler, SP4 Michael R. Harris of the 591st Military Police Company in Fort Bliss, Tex, carried out 220 searches for narcotics, arrested 220 people for possession and uncovered 330 caches of drugs. The German shepherd "Blue" of the Los Angeles Police Department was reported in Jan 1986 to have assisted in apprehending 253 suspected felons.

## Guide Dog

The longest period of *active service* reported for a guide dog is 13 years 2 months, in the case of a Labrador retriever bitch named "Polly" (whelped Oct 10, 1956), owned by Rose Resnick of San Rafael, Calif. The dog was put to sleep Dec 15, 1971.

## Highest and Longest Dog Jumps

The canine "high jump" record for a leap and a scramble over a smooth wooden wall (without any ribs or other aids) is held by a German shepherd called "Max of Pangoula." He scaled an 11-ft-5½-in wall at Chikurubi prison's dog training school near Salisbury; Zimbabwe on Mar 18, 1980. His trainer was Chief Prison Officer Alec Mann.

"Duke," a 3-year-old German shepherd dog, handled by Corp. Graham Urry of RAF Newton, Nottinghamshire, scaled a ribbed wall with regulation shallow slats to a height of 11 ft 9 in on the BBC *Record Breakers* TV program on Nov 11, 1986.

The longest recorded canine long jump was one of 30 ft by a greyhound named "Bang," made in jumping a gate in coursing a hare at Brecon Lodge, Gloucestershire, England, in 1849.

## Top Dog Trainer

The most successful dog trainer is Mrs Barbara Woodhouse of Rickmansworth, Hertfordshire, England, who has trained 19,000 dogs to obey the basic commands during the period from 1951 to her retirement in 1985.

The fastest dog trainer is Armand Rabuttinio of Aston, Pa. His highest total for a single day (9 am-6 pm) is 132 dogs at a training marathon held at Upland, Pa, on June 12, 1982.

## Top Show Dog

The greatest number of "Best-in-Show" awards won by any dog in all-breed shows is the 203 compiled by the Scottish terrier bitch "Ch. Braeburn's Close Encounter" (whelped Oct 22, 1978) up to Mar 10, 1985. She is owned by Sonnie Novick of Plantation Acres, Fla.

## Cat Population

The estimated cat population in 1986 in the US of 56.2 million is the largest in the world, up from 23 million in 1981. Cats are kept in 29.4% of all households in the US, according to the Pet Food Institute in Wash, DC.

## Oldest Cats

Cats are generally longer-lived animals than dogs. Information on this subject is often obscured by two or more cats bearing the same nickname in succession. The oldest cat ever recorded was probably the tabby "Puss," owned by Mrs T. Holway of Clayhidon, Devon, England, who celebrated his 36th birthday on Nov 28, 1939 and died the next day.

A more recent and better-documented case was that of the female tabby "Ma," owned by Mrs Alice St George Moore of Drewsteignton, Devon, Eng. This cat was put to sleep on Nov 5, 1957, aged 34.

## Heaviest and Longest Cats

The largest of 330 cat breeds is the ragdoll, with males weighing 15-20 lb.

In the majority of domestic cats (*Felis catus*), the average weight of males (toms) at maturity is 6.2 lb compared to females (queens) averaging 5.4 lb. Neuters and spays average out somewhat heavier.

The heaviest weight for a domestic cat was recorded as 46 lb 15¼ oz at the time of his death, Mar 12, 1986, for a 10-year-old neutered male tabby named "Himmy," owned by Thomas Vyse of Cairns, Australia. His measurements were neck 15 in, waist 33 in, length 38 in.

## Smallest Cats

The smallest breed of domestic cat is the Singapura or "Drain Cat" of Singapore. Adult males average 6 lb in weight and adult females 4 lb. In extreme cases of feline dwarfism weights of under 3 lb have been reliably reported. A male Siamese cross named "Ebony-Eb-Honey Cat," owned by Angelina Johnston of Boise, Idaho, tipped the scales at only 1 lb 12 oz in Feb 1984, when aged 23 months.

## Largest Cat Litter

The largest litter ever recorded was one of 19 kittens (4 stillborn) delivered by Caesarean section to "Tarawood Antigone," a 4-year-old brown Burmese, on Aug 7, 1970. Her owner, Mrs Valerie Gane of Kingham, Oxfordshire, England, reported that the litter was the result of mismating with a half-Siamese. Of the 15 survivors, 14 were male.

The largest live litter of which all survived was one of 14 kittens

born in Dec 1974 to the Persian cat "Bluebell," owned by Mrs Elenore Dawson of Wellington, Cape Province, South Africa.

### Most Prolific Cat

A cat named "Dusty," aged 17, living in Bonham, Tex, gave birth to her 420th kitten June 12, 1952.

### Richest Cat

When Mrs Grace Alma Patterson of Joplin, Mo died in Jan 1978, she left her entire estate worth \$250,000 to her 18-lb white alley cat "Charlie Chan." When the cat dies, the estate, which includes a three-bedroom house, a 7-acre pet cemetery and a collection of valuable antiques, will be auctioned off and the proceeds donated to humane societies.

### Most Valuable Cat

In 1967 Miss Elspeth Sellar of Grafham, England, turned down an offer of 2,000 guineas (then \$5,880) from an American breeder for her 2-year-old international champion copper-eyed white Persian tom, "Coylum Marcus" (b Mar 28, 1965, d Apr 14, 1978).

### Mousing Champion

The greatest mouser on record is "Towser," (b Apr 21, 1963), a female tortoiseshell cat owned by Glenturret Distillery Ltd, Scotland, who notched up an estimated score of 28,899 kills. She averaged three mice per day until her death on Mar 20, 1987.



#### HAIRLESS CATS:

These rare and expensive Sphinx cats from Germany look like no others.





## Best Climbing Cat

On Sept 6, 1950 a 4-month-old kitten belonging to Josephine Aufdenblatten of Geneva, Switzerland, followed a group of climbers up to the top of the 14,691-ft Matterhorn in the Alps.

## Rabbits

The largest breed of domestic rabbit (*Oryctolagus cuniculus*) is the Flemish giant. Adult specimens average 15.4–18.7 lb but weights up to 25 lb have been reliably reported. In Apr 1980 a 5-month-old female French lop weighing 26.45 lb was exhibited at the Reus Fair in northeastern Spain.

The heaviest recorded wild rabbit (average weight 3½ lb) was one of 8 lb 4 oz, killed by Norman Wilkie of Fife, Scotland while ferreting on Nov 20, 1982.

The smallest breeds of domestic rabbit are the Netherlands dwarf and the Polish, both of which reach a maximum of 2–2½ lb at maturity. In 1975, Jacques Boulloc of Coulommiers, France, announced a new cross of the above breeds which weighed 14 oz.

The most prolific domestic breeds are the New Zealand white and the Californian. Does produce 5–6 litters a year during their breeding life, each containing 8–12 young (compare with 5 litters and 3–7 young for the wild rabbit).

## Longest Ears

In the lop family (French) ears exceeding 30 in have been measured.

## Hares

In Nov 1956 a brown hare (*Lepus europaeus*), weighing a record 15 lb 1 oz, was shot near Welford, Northamptonshire, England. The average adult weight is 8 lb.

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## 2. BIRDS (AVES)

### Largest Bird

The largest living bird is the North African ostrich (*Struthio camelus camelus*) which is found in reduced numbers south of the Atlas Mountains from Upper Senegal and Niger across to the Sudan and central Ethiopia. Male examples of this flightless or ratite subspecies have been recorded up to 9 ft in height and 345 lb in weight.

The heaviest flying bird, or carinate, is the Kori bustard or paauw (*Otis kori*) of East and South Africa. Weights up to 40 lb have been reliably reported for cock birds shot in South Africa. The mute swan (*Cygnus olor*) resident in Britain can also reach 40 lb on occasion, and there is a record from Poland of a cob weighing 49.5 lb which could not fly.

The heaviest bird of prey is the Andean condor (*Vultur gryphus*), which averages 20–25 lb as an adult. A weight of 31 lb has been claimed for an outsize male California condor (*Gymnogyps californianus*) now preserved in the California Academy of Sciences, Los



## Fastest and Slowest Wing Beat

The fastest recorded wing beat of any bird is that of the horned sunbeam (*Heliactin cornuta*) of tropical South America with a rate of 90 beats per sec.

Large vultures (family Vulturidae) sometimes exhibit a flapping rate as low as one beat per sec. Condors can cruise on air currents for 60 miles without beating their wings.

## Highest-Flying

The highest acceptable altitude recorded for a bird is just over 27,000 ft for 30 whooper swans (*Cygnus cygnus*) flying from Iceland to winter at N Ireland. They were spotted by an airline pilot over the Outer Hebrides on Dec 9, 1967, and the height was also confirmed by air traffic control in N Ireland after the swans had been picked up on radar.

A vulture known as Ruppell's griffin with an 8-ft wing span was reported to have collided with a plane at 37,000 feet over Abidjan, Ivory Coast, in 1973, but this is doubted by some leading experts. Geese regularly fly over Mt Everest at 30,000 ft.

## Rarest Bird

Because of the practical difficulties involved in assessing bird populations in the wild, it is virtually impossible to establish the identity of the rarest living bird. The strongest contender, however, must be the dusky seaside sparrow (*Ammospiza nigrescens*), formerly of Titusville Marshes, Fla, with only a solitary captive male remaining at Discovery Island, Disney World, Orlando in Mar 1987. (The last female was sighted in 1975.) Despite the fact that this bird is aged between 10 and 15 years of age, blind in one eye and afflicted with gout, scientists think he may be good for another year or two. In Mar 1987 one of the last two Californian condors (*Gymnogyps californianus*) still living in the wild was captured in an effort to save the species (total population 27) from extinction by breeding them in captivity. The rarest sea bird is the Fiji petrel (*Pseudobulweria macgillivraya*). It is known only from three specimens, the last of which was collected on July 3, 1985 but died a week later.

## Smallest Bird

The smallest bird is the bee hummingbird (*Mellisuga helenae*) found in Cuba and the Isle of Pines. Adult males (females are slightly larger) measure 2.24 in in total length, half of which is taken up by the bill and tail. It weighs 0.056 oz, which means it is lighter than a privet-hawk moth (0.084 oz).

The smallest bird of prey is the 1.23-oz white fronted falconet of northwestern Borneo (*Microhierax latifrons*), which is about the size of a sparrow.

The smallest sea bird is the least storm petrel (*Halocryptena microsoma*), which breeds on many of the small islands in the Gulf of Calif, Mexico. Adult specimens average 5½ in in total length and weigh about 1 oz.



**LARGEST NEST:**  
Bald eagles built this  
6,700-lb nest, 9½ ft  
wide and 20 ft deep,  
near St Petersburg,  
Fla. (Bruce Coleman Ltd)



**LARGEST WING  
SPAN:** This  
wandering albatross,  
caught in the Tasman  
Sea on Sept 18, 1965,  
had an 11-ft-11-in  
wingspan. (Robert  
Burton/Bruce Coleman) !



remains continuously aloft for 3 or 4 years after leaving the nesting grounds in a permanent state of insomnia before it returns to the breeding grounds.



## Incubation

The longest incubation period is that of the wandering albatross (*Diomedea exulans*), with a normal range of 75–82 days. There is an isolated case of an egg of the mallee fowl (*Leipoa ocellata*) of Australia taking 90 days to hatch. Its normal incubation period is 62 days. The shortest incubation period is the 10 days of the great spotted woodpecker (*Dendrocopos major*) and the black-billed cuckoo (*Coccyzus erythrophthalmus*).

The idlest of cock birds include hummingbirds (family Trochilidae), eider duck (*Somateria mollissima*) and golden pheasant (*Chrysolophus pictus*), among whom the hen bird does 100% of the incubation, whereas the female common kiwi (*Apteryx australis*) leaves this to the male for 75–80 days.

## Largest Bird Eggs

Of living birds, the one producing the largest egg is the ostrich (*Struthio camelus*). The average egg weighs 3.63–3.88 lb, measures 6–8 in in length, 4–6 in in diameter and requires about 40 min for boiling. The shell, though 1/16th in thick, can support the weight of a 280-lb man.

## Smallest Bird Eggs

The smallest egg laid by any bird is that of the Vervain hummingbird (*Mellisuga minima*) of Jamaica. Two specimens measuring less than 0.39 in in length weighed 0.0128 oz and 0.0132 oz respectively. The egg of the smallest bird, the bee hummingbird, weighs 0.0176 oz. Eggs emitted from the oviduct before maturity, known as "sports," are not reckoned to be of significance in discussion of relative sizes.

## Longest and Most Feathers

The longest feathers grown by any bird are those of the cock Phoenix fowls, or onagadori (a strain of the red jungle fowl *Gallus gallus*), which has been bred in southwestern Japan since the mid-17th century. In 1972 a tail covert measuring 34 ft 9½ in was reported by Masasha Kubota of Kochi, Shikoku. Among flying birds the two central pairs of tail feathers of Reeve's pheasant (*Syrnaticus reevesi*) of central and northern China can exceed 8 ft. They serve as an escape brake.

In a series of "feather counts" on various species of birds, a whistling swan (*Cygnus columbianus*) was found to have 25,216 feathers, 20,177 of which were on the head and neck. The ruby-throated hummingbird (*Archilochus colubris*) has only 940, although hummingbirds have more feathers per area of body surface than any other living bird.

## Longest Bill

The longest bill grown by any bird in proportion to its body size is that of the male Toco toucan (*Ramphastos tocs*) of eastern S America, whose bill of 7.87 in compares with its 25.98-in total body length. The swordbill hummingbird (*Ensifera ensifera*) of the Andes is 4 in long, excluding tail, and its beak is longer.





on Dec 16, 1976, aged 49 years 8 months. He was hatched in Apr 1927. The longest-lived small cage bird is the canary (*Serinus canaria*). The oldest example on record was a 34-year-old cock bird named "Joey," owned by Mrs K. Ross of Hull, England. The bird was purchased in Calabar, Nigeria, in 1941, and died Apr 8, 1975.

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### 3. REPTILES (*REPTILIA*)

(Crocodiles, snakes, turtles, tortoises and lizards)

#### Largest and Heaviest Reptiles

The largest reptile in the world is the estuarine or salt-water crocodile (*Crocodylus porosus*) of Southeast Asia, northern Australia, Papua New Guinea, Malay Archipelago, Vietnam and the Philippines. Adult males average 14-16 ft in length and scale 900-1,150 lb. A specimen 28 ft 4 in long, weighing c. 4,400 lb, was reportedly found in the Norman River of Australia in 1957.

#### Smallest Crocodile

The smallest living crocodilian is Osborn's dwarf crocodile (*Osteolaemus osborni*), found in the upper region of the Congo River, W Africa. It rarely exceeds 3 ft 11 in in length.

#### Oldest Crocodilian

The greatest age authenticated for a crocodilian is 66 years for a female American alligator (*Alligator mississippiensis*), which arrived at Adelaide Zoo, Australia, on June 5, 1914 as a 2-year-old, and died there on Sept 26, 1978. Another female of this species at the Maritime Museum Aquarium, Gothenburg, Sweden, died on Feb 10, 1987 aged 65 years after the electricity heating its pool was accidentally cut off.

#### Rarest Crocodilian

The rarest crocodilian is the protected Chinese alligator (*Alligator sinensis*) of the lower Chang Jiang (Yangtse Kiang) River. The total population is currently estimated at 700-1,000 individuals.

#### Largest Lizards

The largest of all lizards is the Komodo monitor or Ora (*Varanus komodoensis*), a dragon-like reptile found on the Indonesian islands of Komodo, Rintja, Padar and Flores. Adult males average 7 ft 5 in in length and weigh 130 lb. Lengths up to 30 ft (*sic*) have been quoted for this species, but the largest specimen to be accurately measured was a male presented to an American zoologist in 1928 by the Sultan of Bima which taped 10 ft 0.8 in. In 1937 this animal was put on display in the St Louis Zoological Gardens for a short period. It then measured 10 ft 2 in in length and weighed 365 lb.

The longest lizard in the world is the slender Salvadori monitor (*Varanus salvadori*) of New Guinea which has been reliably measured up to 15 ft 7 in long.



length (length of carapace 4-5 ft) and weighs up to 1,000 lb. The greatest weight reliably recorded is 1,908 lb for a male captured off Monterey, Calif on Aug 29, 1961. Its length was 8 ft 4 in overall.

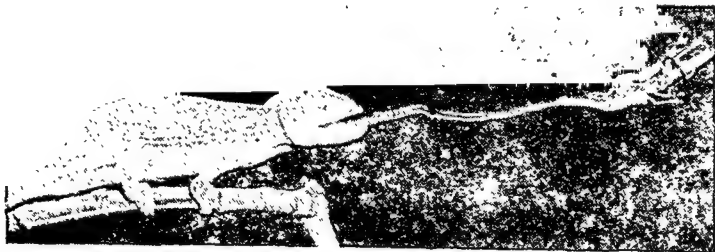
The largest living tortoise is *Geochelone (Testudo) gigantea* of the Indian Ocean islands of Aldabra, Mauritius, and the Seychelles (introduced 1874). A male named "Marmaduke" received at the London Zoo in 1951 recorded a peak weight of 616 lb before his death Jan 27, 1983.

### Longest-Lived Chelonians

The greatest authentic age is '152+ years for a male Marion's tortoise (*Testudo sumerii*) brought from the Seychelles to Mauritius in 1766, which went blind in 1908, and was accidentally killed in 1918.

The greatest proven age of a continuously observed tortoise is 116+ years for a Mediterranean spur-thighed tortoise (*Testudo graeca*) which died in Paignton Zoo, Devon, England, in 1957.

The oldest turtle on record was an alligator snapping turtle (*Macrochelys temminckii*) at the Philadelphia Zoo, which was accidentally killed on Feb 7, 1949 when it was 58 years 9 months 1 day old.



CHAMELEONS move slowly (5 yd per hour) but they can change color and capture prey this way.



LARGEST CHELONIAN: The Pacific leatherback turtle which weighs up to 1,908 lb, has just laid its eggs on the beach in Malaysia and a man is picking them up for a gourmet feast.

## Slowest-Moving Chelonians

In a recent "speed" test carried out in the Seychelles, in the Indian Ocean, a male giant tortoise (*Geochelone gigantea*) could only cover 5 yd in 43.5 sec. (0.23 mph) despite the enticement of a female tortoise.

## Smallest Reptiles

The smallest known species of reptile is believed to be *Sphaerodactylus parthenopion*, a tiny gecko found only on the island of Virgin Gorda, one of the British Virgin Islands in the Caribbean. It is known only from 15 specimens, including some gravid females, found between Aug 10 and 16, 1964. The three largest females measured 0.71 in from snout to vent, with a tail of approximately the same length.

It is possible that another gecko, *Sphaerodactylus elasmorhynchus*, may be even smaller. The only specimen ever discovered was an apparently mature female, with a snout-vent length of 0.67 in and a tail of the same length, found March 15, 1966 among the roots of a tree in the western part of the Massif de la Hotte in Haiti.

## Fastest Reptile

The fastest-moving land snake is probably the slender black mamba (*Dendroaspis polylepis*). A speed of 10-12 mph may be possible for short bursts over level ground.

The highest speed measured for any reptile on land is 18 mph by a lined race runner (*Cnemidophorus sexlineatus*) pursued by a car in McCormick, SC, in 1941. The highest speed claimed for any reptile in water is 22 mph by a frightened Pacific leatherback turtle (see *Largest Chelonians*).

## Longest Fangs

The longest fangs of any snake are those of the Gaboon viper (*Bitis bonita*), of tropical Africa. In a 6-ft-long specimen, the fangs measured 1.96 in. A Gaboon viper bit itself to death on Feb 12, 1963 at the Philadelphia Zoological Gardens. Keepers found the dead snake with its fangs deeply embedded in its own back.

## Rarest and Oldest Snakes

The rarest snake is the keel-sealed boa (*Casarea dussumieri*) of Lord of the Isles Island, western Indian Ocean, which has a total population of only 10.

The oldest is a common boa who lived for 40 years 3 months 14 days in the Philadelphia Zoo.

## Longest and Heaviest Snakes

The longest of all snakes (average adult length) is the reticulated python (*Python reticulatus*) of Southeast Asia, Indonesia and the Philippines, which regularly exceeds 20 ft 6 in. In 1912 a specimen measuring exactly 32 ft 9½ in was shot near a mining camp on the north coast of Celebes in the Malay archipelago.

The longest (and heaviest) snake ever held in captivity was a female reticulated python (*Python reticulatus*) named "Colossus" who died in 1961.



**OLDEST AND SMALLEST SNAKES:** "Popeye," a common boa constrictor (above) lived for more than 40 years in the Philadelphia Zoo before he had to be euthanased. The tiny thread snake (right) is only 4.7 in long.



**CRESTED IGUANA** of Fiji Islands gets its first view of the outside world. ▼



**LONGEST VENOMOUS SNAKE:** ▲ The king cobra of Southeast Asia can grow to 18 ft 9 in. (Photo from *Reptile World Serpenterium*. Courtesy "Living Snakes of the World in Color" by John M. Mehrtens.)



(Salamanders, toads, frogs, newts, caecilians, etc.)

## Largest Amphibian

The largest species of amphibian is the Chinese giant salamander (*Andrias davidianus*), which lives in the cold mountain streams and marshy areas of northeastern, central and southern China. The average adult measures 3 ft 9 in in total length and weighs 55–66 lb. One specimen collected in Hunan Province in southern China measured 5 ft 11 in in total length and weighed 143 lb.

## Largest Toad

The most massive toad is probably the marine toad (*Bufo marinus*) of tropical South America. An enormous female collected on Nov 24, 1965 at Miraflores Vaupes, Colombia, and later exhibited in the reptile house at the Bronx Zoo, New York City, had a snout-vent length of 9.37 in, and weighed 2 lb 11¼ oz at the time of its death in 1967.

## Largest Frog

The largest known frog is the rare Goliath frog (*Contana goliath*) of Cameroon and Equatorial Guinea. A female weighing 7 lb 4.5 oz was caught in the River Mbia, Equatorial Guinea, on Aug 23, 1960. It had a snout-vent length of 13.38 in and measured 32.08 in overall with legs extended.

## Largest Tree Frog

The largest species of tree frog is *Hyla vasta*, found only on the island of Hispaniola (Haiti and the Dominican Republic) in the West Indies. The average snout-vent length is about 3.54 in, but a female collected from the San Juan River, Dominican Republic, in March 1928 measured 5.63 in.

## Longest-Lived Amphibian

The greatest authentic age recorded for an amphibian is about 55 years for a male Japanese giant salamander (*Andrias japonicus*) which died in the aquarium at Amsterdam Zoological Gardens June 3, 1881. It was brought to Holland in 1829, at which time it was estimated to be 3 years old.

## Rarest Amphibian

The rarest amphibian is the Israel painted frog (*Discoglossus nigriventer*), which has only been recorded from the eastern shore of Israel's Lake Huleh (Hula Lake). Since its discovery in 1940 only 5 specimens have been collected.

## Smallest Amphibian

The smallest known amphibian is the arrow-poison frog *Sminthillus limbatus*, found only in Cuba. Fully grown specimens have a snout-vent length of 0.44–0.48 in.





## Highest and Lowest Amphibian

The greatest altitude at which an amphibian has been found is 26,246 ft in the Himalayas for a common toad (*Bufo vulgaris*). This species has also been found at a depth of 1,115 ft in a coal mine.

## Most Poisonous Venom

The most active known venom is the batrachotoxin derived from the skin secretions of the golden dart-poison frog (*Phyllobates terribilis*) of western Colombia, South America, which is at least 20 times more toxic than that of any other known dart-poison frog. An average adult specimen contains enough poison (0.038 oz) to kill 2,200 people.

## Longest Frog Jump

The record for the standard three consecutive leaps is 33 ft 5½ in by a female South African sharpnosed frog (*Rana oxyrhynchus*) named "Santjie" at a frog derby held at Lurula Natal Spa, Paulpietersburg, Natal, S Africa May 21, 1977. At the annual Calaveras County Jumping Frog Jubilee at Angels Camp, Calif, the record is 21 ft 5¾ in by "Rosie the Riveter," an American bullfrog (*Rana catesbeiana*), owned and trained by Lee Guidicci of Santa Clara, Calif on May 18, 1986. "Santjie" would have been ineligible at Calaveras because entrants there must measure at least 4 in "stem to stern."

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## 5. FISHES (AGNATHA, GNATHOSTOMATA)

### Largest Freshwater Fishes

The largest fish which spends its whole life in fresh or brackish water is the rare Pa Beuk or Pla Buk (*Pangasianodon gigas*), a giant catfish found in the deep waters of the Mekong River of Laos and Thailand. Adult males average 8 ft in length and weigh about 360 lb. This size was exceeded by the European catfish or wels (*Silurus glanis*) in earlier times (in the 19th century lengths of up to 15 ft and weights up to 720 lb were reported for Russian specimens from the Dnieper River), but today anything over 6 ft and 200 lb is considered large. The arapaima (*Arapaima glanis*), also called the pirarucu, found in the Amazon and other South American rivers and often claimed to be the largest freshwater fish, averages 6½ ft and 150 lb. The largest "authentically recorded" measured 8 ft 1½ in and weighed 325 lb. It was caught in the Rio Negro, Brazil, in 1836. In Sept 1978 a Nile perch (*Lates niloticus*) weighing 416 lb was netted in the eastern part of Lake Victoria, Kenya.

### Largest Sea Fishes

The largest fish is the rare, plankton-feeding whale shark (*Rhincodon typus*) which is found in the warmer areas of the Atlantic, Pacific and Indian Oceans. The longest scientifically measured one on record was a 41½ ft specimen captured off Baba Island near Karachi, Pakistan, on Nov 11, 1949. It measured 23 ft round the thickest part of its body and weighed an estimated 33,600 lb.



mph) has been calculated from a penetration of 22 in by a bill into a piece of timber, but 30–35 knots (35–40 mph) is the most conceded by some experts. A wahoo (*Acanthocybium solandri*) 43 in in length is capable of attaining a speed of 47.8 mph.

## Most Abundant Fish

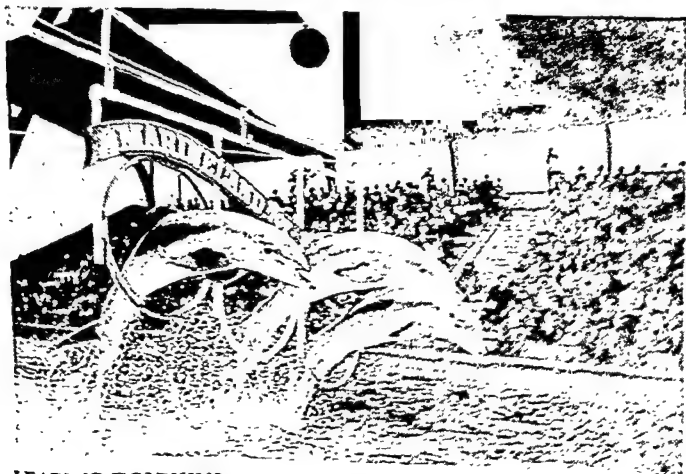
The most abundant species is probably the 3-in-long deep-sea bristlemouth (*Cyclothone elongata*) which has a worldwide distribution.

## Deepest Fish

The greatest depth from which a fish has been recovered is 27,230 ft in the Puerto Rico Trench (27,488 ft) in the Atlantic by Dr Gilbert L. Voss of the US research vessel *John Elliott*. The fish was a 6½-in-long *Bassogigas profundissimus* taken in Apr 1970 and was only the fifth such brotulid ever caught.



**WALKING CATFISH:** Not only can some species walk but others (from Africa) carry an electric discharge of about 350 volts at 1 amp.



**LEAPING DOLPHINS:** At Marineland in Fla, as well as in other aquaria, whales and dolphins, trained by humans, amuse the crowd.

## Longest-Lived Fishes

Aquaria are of too recent origin to be able to establish with certainty which species of fish can fairly be regarded as the longest-lived. Early indications are that it may be the lake sturgeon (*Acipenser fulvescens*) of N America. One specimen found in Lake Winnebago, Wis, lived 82 years, an estimate based on its annuli, 1951-54. In July 1974 a figure of 228 years (*sic*) was attributed by growth ring count to a female Koi fish, a form of fancy carp, named "Hanako" living in a pond in Higashi Shirakawa, Gifu Prefecture, Japan, but the greatest authoritatively accepted age for this species is "more than 50 years."

The death of an 88-year-old female European eel (*Anguilla anguilla*) named "Putte" in the aquarium at Halsingborg Museum, Sweden was reported in 1948. She was allegedly born in the Sargasso Sea of the North Atlantic in 1860, and was caught in a river as a 3-year-old elver (young eel).

## Oldest Goldfish

Goldfish (*Carassius auratus*) have been reported to live for over 40 years in China. A specimen named "Fred," owned by A. R. Wilson of Worthing, W Sussex, Eng., died on Aug 1, 1980, aged 41 years.

## Shortest-Lived Fishes

The shortest-lived fishes are probably certain species of the sub-order Cyprinodontei (killifish) found in Africa and South America which normally live about 8 months in the wild.

## Most Venomous Fish

The most venomous fish are the stonefish (Synanceidae) of the tropical waters of the Indo-Pacific, and in particular *Synanceja horrida* which has the largest venom glands of any known fish. Direct contact with the spines of its fins, which contain a strong neurotoxic poison, often proves fatal.

## Most Valuable Fish

The most valuable fish is the Russian sturgeon (*Huso huso*). One 2,706-lb female caught in the Tikhaya Sosna River in 1924 yielded 541 lb of best quality caviar, valued at \$184,500 in 1986, at the rate of \$340 per lb.

## Most and Least Fish Eggs

The ocean sunfish (*Mola mola*) produces in a single spawning up to 300 million eggs, each of them measuring about 0.05 in in diameter. The egg yield of the tooth carp *Jordanella floridae* of Florida is only about 20 over a period of several days.

## Most Electric Fish

The most powerful electric fish is the electric eel (*Electrophorus electricus*), which is found in the rivers of Brazil, Colombia, Venezuela and Peru. An average-sized specimen can discharge 400 volts at 1 ampere, but measurements up to 650 volts have been recorded.

## 6. STARFISHES (ASTEROIDEA)

### Largest and Heaviest Starfishes

The largest of the 1,600 known species of starfish in terms of total arm span is the very fragile brisingid *Midgardia xandaros*. A specimen collected by the Texas A & M University research vessel *Alaminos* in the southern part of the Gulf of Mexico in the late summer of 1968 measured 54.33 in from tip to tip but the diameter of its disc was only 1.02 in. Its dry weight was only 2.46 oz. The heaviest species of starfish is the five-armed *Thromidia catalai* of the Western Pacific. One specimen, collected off Ilot Amedee, New Caledonia, Sept 14, 1969, and later deposited in the Noumea Aquarium, weighed an estimated 13.2 lb with a total arm span of 24.8 in.

### Smallest Starfish

The smallest known starfish is the asterinid sea star (*Patiriella parvivipara*) discovered by Wolfgang Zeidler on the west coast of the Eyre Peninsula, S Australia, in 1975, which has a maximum radius of 0.18 in and a diameter of 0.35 in.

### Most Destructive Starfish

The Crown of Thorns (*Acanthaster planci*) of the Indo-Pacific region and the Red Sea can destroy 46.5–62 sq in of coral in a day.

**UNDERWATER  
DIVER** in a bell has a  
visit from a starfish.  
The largest known  
measured more than  
54 in and weighed  
more than 13 lb.



## Deepest Starfish

The greatest depth from which a starfish has been recovered is 24,881 ft for a specimen of *Porcellanaster ivanovi*, collected by the Russian research ship *Vityaz* in the Marianas Trench, in the Western Pacific in about 1962.

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## 7. ARACHNIDS (ARACHNIDA)

### Largest and Heaviest Spiders

The largest known spider is the Goliath bird-eating spider (*Theraphosa blondi*) of the coastal rain forests of northern South America. One female specimen was owned by Charles Seiderman of NYC with a peak weight before it died in Jan 1986 of 4.35 oz, a body length of 4 in, a leg span of 10½ in, and 1-in-long fangs. It had been captured in Surinam.

An outsized male example collected in Apr 1965 by an expedition in Venezuela had a leg span of 11.02 in.

### Smallest Spider

The smallest known spider is *Patu marplei* (family Symphytognathidae) of Western Samoa. The type specimen (a male found in moss at c. 2,000-ft altitude near Malolelei, Upolu, in Jan 1956) measures 0.016 in overall—half the size of a printed period (.).

### Largest and Smallest Webs

The largest webs are the aerial ones spun by the tropical orb weavers of the genus *Nephila*, which have been measured up to 18 ft 9¼ in in circumference. The smallest webs are spun by spiders such as *Glyphesis cottonae*, etc., which are smaller than a postage stamp, covering ¼ of a sq in.

### Most Venomous Spiders

The most venomous spiders are the Brazilian wandering spiders of the genus *Phoneutria* and particularly *P. fera*, which has the most active neurotoxic venom of any living spider. These large and highly aggressive creatures frequently enter human dwellings and hide in clothing or shoes. When disturbed, they bite furiously several times, and hundreds of accidents involving these species are reported annually. Fortunately an effective antivenin is available, and when deaths do occur they are usually among children under the age of 7.

### Fastest Spider

The fastest-moving arachnids are the long-legged sun spiders of the genus *Solpuga*, which live in the arid semi-desert regions of Africa and the Middle East. Some species probably have a burst sprint capability of at least 10 mph.

**LARGEST SPIDER:**  
This huge quarter-pound "Theraphosa bicolor" female has a leg span of 10 1/2 in. (20 cm) in width.  
Charles D. Solomon

### Rarest Spider

The most elusive of all spiders are the rare trapdoor spiders of the genus *Liphistius* which are found in Southeast Asia.

### Longest-Lived Spider

The longest-lived of all spiders are the primitive *Mygalomorphae* (tarantulas and allied species). One mature female tarantula, collected at Mazatlan, Mexico, in 1935 and estimated to be 12 years old at the time, was kept in a laboratory for 16 years, making a total of 28 years.

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## 8. CRUSTACEANS

(Crabs, lobsters, shrimps, prawns, crayfish, barnacles, water fleas, fish lice, wood lice, sand hoppers and krill, etc.)

### Largest Crustacean

The largest of all crustaceans (although not the heaviest) is the giant spider crab (*Macrocheira kaempferi*), also called the stilt crab, which is found in deep waters off the southeastern coast of Japan. Mature specimens usually have a 12-14-in-wide body and a claw span of 8-9 ft, but unconfirmed measurements up to 19 ft have been reported. A specimen with a claw span of 12 ft 1 1/2 in weighed 41 lb.

### Largest Lobster

The largest species of lobster, and the heaviest of all crustaceans, is the American or North Atlantic lobster (*Homarus americanus*). The largest lobster, a specimen weighing 44 lb 6 oz measuring 3 ft 6 in from the end of the tail-fan to the tip of the largest claw, was caught off Nova Scotia, Canada, on Feb 11, 1977. It was later sold to Steve Karathanos, owner of a Bayville, NY restaurant.



## Smallest Crustaceans

The smallest known crustaceans are water fleas of the genus *Alonella*, which may measure less than 0.0098 in long. They are found in northern European waters.

The smallest known lobster is the Cape lobster (*Homarus capensis*) of South Africa which measures 3 9/47 in in total length.

The smallest crabs in the world are the aptly named pea crabs (family Pinnotheridae). Some species have a shell diameter of only 0.25 in, including *Pinnotheres pisum*.

## Longest-Lived Crustacean

The longest-lived of all crustaceans is the American lobster (*Homarus americanus*). Very large specimens may be as much as 50 years old.

## Deepest Crustacean

The greatest depth from which a crustacean has been recovered is 34,450 ft for live amphipods from the Challenger Deep, Marianas Trench, West Pacific by the US research vessel *Thomas Washington* in Nov 1980. Amphipods and isopods have also been collected in the Ecuadorian Andes at a height of 13,300 ft.



**SMALLEST CRAB.** Only 1/4 in long, the pea crab is aptly named. It lives in the mantle cavities of bivalve mollusks (*Heather Angel*).

## 9. INSECTS

### Largest Cockroach

The largest cockroach is the giant burrowing cockroach (*Macropanesthia rhinoceros*) of tropical northern Queensland, Australia. A female measuring 3.11 in in length, 1.49 in across and weighing 0.77 oz was collected at Agnes Water, Queensland, in Dec. 1986.

### Longest Insect

The longest insect in the world is the giant stick-insect *Pharnacia serratipes* of Indonesia, females of which have been measured up to 13 in in body length. The longest beetle known (excluding antennae) is the Hercules beetle (*Dynastes hercules*) of Central and South America, which has been measured up to 7.48 in. More than half the length, however, is taken up by the prothoracic horn.

### Smallest Insects

The smallest insects recorded so far are the "hairy-winged" beetles of the family Ptiliidae (= Trichopterygidae) and the "battledore-wing fairy flies" (parasitic wasps) of the family Myrmaridae. They are smaller than some of the protozoa (single-celled animals).

The male bloodsucking banded louse (*Enderleinellus zonatus*), ungorged, and the parasitic wasp (*Caraphractus cinctus*) may each weigh as little as 0.005 mg, or 5,670,000 to an oz. The eggs of the latter each weigh 0.0002 mg or 141,750,000 to an oz.

### Heaviest Insects

The heaviest living insects are the Goliath beetles (family Scarabaeidae) of Equatorial Africa. The largest members of the group are *Goliathus regius* and *Goliathus goliathus* (*giganteus*). In one series of fully grown males (females are smaller) the weight ranged from 2.5–3.5 oz.

### Toughest Insect

The larva of the chironomid fly *Polypedilum vanderplanki* can tolerate temperatures from 215.6°F to -454°F and is the most advanced organism that can be totally dehydrated.

### Rarest

It was estimated by Dr Erwin (US) in 1962 that there may be 30 million species of insect—more than all other classes and phyla put together. Thousands are single holotypes.

### Fastest-Flying Insects

Experiments have proved that a widely publicized claim by an American entomologist in 1926, that the cock fly (*Cephenemion pratti*) could attain a speed of 212 mph at an altitude of 12,000 ft was wildly exaggerated. It now is widely known that a cock fly "pop." Acceptable modern experiments have been established that the



**HEAVIEST INSECT:**  
The Goliath beetle  
(next to a ladybug)  
weighs as much as  
3½ oz and measures  
4¼ in.

highest maintainable air speed of any insect, including the deer  
mot-fly, is 24 mph, rising to a maximum of 36 mph for short bursts.

### Loudest Insects

The loudest of all insects is the male cicada (family Cicadidae). At  
7,400 pulses per min its tymbal (sound) organs produce a noise  
(officially described by the US Dept of Agriculture as "Tsh-ee-EEEE-  
e-ou") detectable over a quarter of a mile distance

### Largest Dragonfly

The largest dragonfly is *Megaloprepus caeruleata* of Central and  
South America, which has been measured up to 7.52 in across the  
wings and 4.72 in in body length

### Longest-Lived Insects

The longest-lived insects are the splendor beetles (*Buprestidae*),  
some of which remain in the larvae stage for more than 30 years. On  
May 27, 1983 a *Buprestis aurulenta* appeared from the staircase  
timber in the home of Mr W. Euston of Prittlewell, Southend-on-Sea  
Eng after 47 years as a larva.

### Honey Yield

The greatest amount of wild honey ever extracted from a single hive  
is 549 lb recorded by A D Wilkes of Cairns, Australia, in the 11  
months Feb-Dec 1983. A gain of 587 lb was reported by John R. Clif  
of Minneapolis for a hive in the calendar year 1983

### Largest Flea

The largest known flea is *Hystrihopsylla schefferi*, described from  
a single specimen taken from the nest of a mountain beaver  
(*Aplodontia rufa*) at Puyallup, Wash in 1913. Females measure up to  
0.31 in in length, which is the diameter of a pencil.

## Flea Jumps

The champion jumper among fleas is the common flea (*Pulex irritans*). In one American experiment carried out in 1910 a specimen allowed to leap at will performed a long jump of 13 in and a high jump of  $7\frac{3}{4}$  in. In jumping 130 times its own height a flea subjects itself to a force of 200 g. Siphonapterologists recognize 1,830 varieties of fleas.

## Largest Butterflies and Moths

The largest known butterfly is the protected Queen Alexandra birdwing (*Ornithoptera alexandrae*) of Papua New Guinea. Females may have a wing span exceeding 11.02 in and weigh over 0.88 oz.

The largest moth (though not the heaviest) is the Hercules moth (*Coscinoscera hercules*) of tropical Australia and New Guinea. A wing area of up to 40.8 sq in and a wing span of 11 in have been recorded. In 1948 an unconfirmed measurement of 14.17 in was reported for a female captured near the post office at the coastal town of Innisfail, Queensland, Australia. The rare owlet moth (*Thysania agrippina*) of Brazil has been measured up to 12.16 in wing span.

## Smallest Butterfly

The smallest known butterfly is the recently discovered *Microgryche ariana*, which has a wing span of 0.275 in. The type specimen was collected on Mt. Khwajaghar in the Koh-i-Baba range, Afghanistan. The smallest of the estimated 140,000 known species of *Lepidoptera* are the moths *Johanssonia acetosae* (Stalder), found in Great Britain, and *Stigmella ridiculosa* from the Canary Islands, which have a wing span of 0.08 in and a similar body length.

## Rarest Butterfly

The birdwing butterfly *Ornithoptera* (= *Troides*) *almana* of Bougainville, Solomon Islands is known from less than a dozen specimens. A male from the collection of C. Rousseau Decelle was auctioned for £750 (then \$2,100) in Paris on Oct 24, 1966.

## Largest Butterfly Farm

Stratford-upon-Avon Butterfly Farm (Eng) has a main flight area of 6,338 sq ft which can accommodate 2,000 exotic butterflies in authentic rain forest conditions. The total of all flight areas at the butterfly farm which opened on June 15, 1975, is 8,745 sq ft.

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## 10. CENTIPEDES (CHILOPODA)

### Longest and Shortest

The longest known species of centipede is a large variant of the widely distributed *Scolopendra morsitans*, found on the Andaman Islands, Bay of Bengal, India. Specimens have been measured up to 13 in in length and  $1\frac{1}{2}$  in in breadth. The shortest recorded centipede is an unidentified species which measures only 0.19 in.

## Most Legs

The centipede with the greatest number of legs is *Himantarium gabrielis* of southern Europe which has 171–177 pairs when adult.

## Fastest

The fastest centipede is probably *Scutigera coleoptrata* of southern Europe which can travel at a rate of 1.1 mph.

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## 11. MILLIPEDES (DIPLOPODA)

### Longest and Shortest

The longest species of millipede known are the *Graphidostreptus gigas* of Africa and *Scaphistostreptus seychellarum* of the Seychelles Islands in the Indian Ocean, both of which have been measured up to 11.02 in in length and 0.78 in in diameter. The shortest millipede in the world is the British species *Polyxenus lagurus*, which measures 0.082–0.15 in in length.

### Most Legs

The greatest number of legs reported for a millipede is 375 pairs (750 legs) for *Illacme plenipes* of Calif.



MILLIPEDES have as many as 750 legs (not 1,000), and this giant from the Seychelles Islands is nearly 1 ft long. (J. W. Eaton/WWT)

## 12. SEGMENTED WORMS ~~AND~~

### Worm Charming

The record for attracting (by vibrations) earthworms to the surface of a one-sq-meter of soil is 145 worms in 15 min on Mar 22, 1986 by a team led by Bob Beem of Dartmouth, Eng.

### Longest and Shortest Earthworms

The longest known species of earthworm is *Murchieana rufi* (= *M. microchaetus*) of South Africa. In c 1937 a giant earthworm measuring 22 ft in length when naturally extended and 0.73 in in diameter was collected in the Transvaal, S Africa.

The shortest segmented worm known is *Chaetogaster arrandae*, which measures less than 0.019 in in length.

### Greatest Size Difference Between Sexes

The largest female marine worms of the species *Bonellia viridis* are at least 100 million times heavier than the smallest males. The female is up to 39.3 in long against the miserable 0.04 in of the male.

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## 13. MOLLUSKS

(Squids, octopuses, snails, shellfish, etc.)

### Largest Squid

The largest known invertebrate is the Atlantic giant squid *Architeuthis dux*. On Nov 2, 1878 a specimen measuring 55 ft in total length (head and body 20 ft, tentacles 35 ft) was killed after it ran aground in Thimble Tickle Bay, Newfoundland, Canada. It weighed an estimated 4,400 lb. This squid has the largest eye of any animal—15.75 in in diameter. In Oct 1887 another giant squid (*Architeuthis forstermanni*) measuring 57 ft in total length was washed up in Long Bay, NZ, but 49 ft of this was tentacle.

### Largest Octopus

The largest octopus known in science is *Octopus apollyon* of the coastal waters of the N Pacific. One huge individual caught single-handed by skin diver Donald E. Fager in Lewis Harbor Canal, Puget Sound, Wash. on Feb 13, 1973, has a relaxed 23-ft radial spread and weighed 118 lb 15 oz.

### Largest Bivalve Shell

The largest of all existing bivalve shells is the Pacific giant clam *Tridacna gigas*, found in the Indo-Pacific Coral Reefs. It grows to

Segmented Worms Mollusks 111



## 14. RIBBON WORMS (NEMERTINÁ)

### Longest Worm

The longest of the 550 recorded species of ribbon worms, also called nemertines (or nemerteans), is the "boot-lace worm" (*Lineus longissimus*), found in the shallow waters of the North Sea. A specimen washed ashore at St Andrews, Fife, Scotland, in 1864, after a severe storm, measured more than 180 ft in length.

### Immolation

Some ribbon worms (nemertines) absorb themselves when food is scarce. One specimen under observation digested 95 per cent of its own body in a few months without apparently suffering any ill effects. As soon as food became available the lost tissue was restored.

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## 15. JELLYFISHES AND CORALS (CNIDARIA)

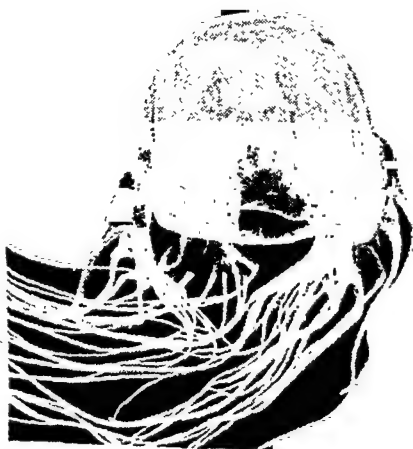
### Largest Jellyfish

The largest jellyfish is the Arctic giant jellyfish (*Cyanea capillata arctica*) of the northwestern Atlantic. One specimen washed up in Massachusetts Bay had a bell diameter of 7 ft 6 in and tentacles stretching 120 ft.

### Coral

The world's greatest stony coral structure is the Great Barrier Reef

**MOST VENOMOUS JELLYFISH:** The beautiful but deadly Australian sea wasp has caused the death of 66 people off the coast of Queensland since 1880. Victims die within 3 min. Best protection is wearing pantyhose. (Neville Coleman/Bruce Coleman Ltd)







## Fastest Dinosaurs

Trackways can be used to estimate dinosaur speeds, and one from the Lower Cretaceous of Texas discovered in 1981 indicated that a carnivorous dinosaur had been moving at 25 mph. Some of the Ornithomimids (ostrich dinosaurs) were even faster, and the 220-lb *Dromiceiomimus* could probably out-sprint an ostrich, which has a top speed of 45 mph.

## Dinosaur Deaths

Fossil evidence suggests that dinosaur extinction in western America was a gradual (not sudden) process that began 7 million years before the end of the Cretaceous era. It was not due to the impact of a meteorite 65 million years ago, according to a report from paleontologists from the Univ of Minn writing in *Science*, May 2, 1986.

## Smallest Dinosaurs

The smallest dinosaurs so far recorded are the chicken-sized *Compsognathus* ("pretty jaw") of southern W Germany and southeast France, and an undescribed plant-eating fabrosaurid from Colorado, both of which measured 29.5 in from the snout to the tip of the tail.

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## PLANT KINGDOM (PLANTAE)

The medicinal value of plants was known to Neanderthal man in Iraq c. 60,000 BC. The earliest evidence for a garden is a relief of c. 3000 BC in Egypt depicting a specimen palm in a protective enclosure amid irrigation or decorative waterways. Though the Romans had gardens in England from AD 43, the earliest surviving garden is at Romsey Abbey, Hampshire laid out c. 1092.

## Oldest Living Things

"King Clone," the oldest known clone of the creosote plant (*Larria tridentata*) found in southwestern Calif, was estimated in Feb 1980 by Prof Frank C. Vasek to be 11,700 years old.

It is possible that crustose lichens in excess of 19.6 in in diameter may be as old. In 1981 it was estimated that Antarctic lichens of more than 3.9 in in diameter are at least 10,000 years old.

## Largest Blossoming Plant

The largest blossoming plant is the giant Chinese wisteria at Sierra Madre, Calif. It was planted in 1892 and now has branches 500 ft long. It covers nearly an acre, weighs 252 tons and has an estimated 1,500,000 blossoms during its blossoming period of five weeks, when up to 30,000 people pay admission to visit.

## Rarest Plants

Plants thought to be extinct are rediscovered each year and there are thus many plants of which specimens are known in but a single locality.



## Fastest Growth

The case of a *Hesperogucca whipplei* of the family Liliaceae growing 12 ft in 14 days was reported from Treco Abbey, Isles of Scilly, England, in July 1978.

## Deepest and Densest Roots

The greatest reported depth to which roots have penetrated is a calculated 400 ft in the case of a wild fig tree at Echo Caves, near Ohrigstad, East Transvaal, South Africa. A single winter rye plant (*Secale cereale*) has been shown to produce 387 miles of roots in 1.83 cu ft of earth.

## Largest Cactus

The largest of all cacti is the saguaro (*Cereus giganteus* or *Carnegiea gigantea*), found in Ariz, southeastern Calif, and Sonora, Mexico. The green fluted column is surmounted by candelabra-like branches rising to a height of 52 ft 6 in in the case of a specimen measured on the boundary of the Saguaro National Monument, Ariz. They have waxy white blooms which are followed by edible crimson fruit. An armless cactus 78 ft in height was measured in 1978 by Hube Yates in Cave Creek, Ariz. It was toppled in a windstorm in July 1986 at an estimated age of 150 years.

## Wreaths and Arrangements

The largest constructed wreath was built by The Farm Stand, wholesale nurserymen of Walworth, NY in Nov 1985 measuring 100 ft 8 in in diameter and weighing 9,840 lb.

The largest arrangement of a single variety of flower was made by Johan Weisz, floral designer of Amsterdam, and 15 assistants at the City Hall, Aalsmeer, Netherlands Sept 23-25, 1986. It consisted of 35,000 "Zurella" roses and measured 71 ft 6 in in length, 25 ft 2 in in width and 24 ft 11 in high.

## Most Valuable Flower

The \$10,000 prize offered by the Burpee Co. in 1954 for producing the first all-white marigold was won on Aug 12, 1975 by Alice Vonk of Sully, Iowa.

## Plants at Highest Altitude

The greatest certain altitude at which any flowering plants have been found is 21,000 ft on Kamet (25,447 ft), India, by N. D. Jayal in 1955. They were *Ermanium himalayense* and *Ranunculus lobatus*.

## Champion Plant Collector

Dr Julian A. Steyermark of the Herbario Nacional, Caracas, Venezuela had, by Sept 1985 made an unrivalled total of 137,000 collections, of which 132,000 were wild.

## FRUITS & VEGETABLES

**Most and Least Nutritive Fruits.** An analysis of the 38 commonly eaten raw (as opposed to dried) fruits shows that the one with the highest caloric value is the avocado (*Persea americana*) with 741 calories per edible lb. That with the lowest value is cucumber with 73 calories per lb. Avocados probably originated in Central and South America and also contain vitamins A, C, and E and 2.2% protein.

**Apple.** An apple weighing 3 lb 1 oz was reported by V. Love-ridge of Ross-on-Wye, England in 1965. Mr & Mrs Harold Spittler of Arcanum, O, grew 2 Stark® Jumbo apples 17½ in in circumference in 1985.

**Artichoke.** An 8-lb specimen was reported by A.R. Lawson of Tollerton, N Yorkshire, Eng. in 1964.

**Beet.** A 22-lb-4-oz red beet, 34½ in around, was grown by Howard Trivelpiece of Yreka, Calif. A sugar beet weighing 45½ lb was grown in 1974 by Robert Meyer of Brawley, Calif.

**Broccoli.** A head of broccoli weighing 28 lb 14¼ oz was grown in 1964 by J. T. Cooke of Funtington, W Sussex, England.

**Cabbage.** In 1865 William Collingwood of The Stalwell, County Durham, England, grew a red cabbage with a circumference of 259 in. It reputedly weighed 123 lb.

**Carrot.** A carrot weighing 15 lb 7 oz was grown by Miss I. G. Scott of Nelson, NZ, in Oct 1978.

**Cauliflower.** A record cauliflower weighing 52 lb 11½ oz was also grown by Mr Cooke (see *Broccoli*) in 1966.

**Celery.** A 35-lb-8-oz bunch was reported grown by E. Stone of E. Woodgates, Eng, in 1986.

**Collard.** A 35-ft-tall, 59¼-in-wide collard was grown by Bobby Rackley of Rocky Mount, NC, in 1980.

**Corn.** A 22 ft ¼ in corn plant was grown by Fred Muermann of Chetek, Wis in Sept 1986.

**Cucumber.** Mrs Eileen Chappel grew a 48½ lb monster at Nudgee, Queensland, Australia in 1986

**Eggplant.** A 5-lb-5.4-oz eggplant was reported grown in Sept 1984 by brothers John and Jim Charles in Summerville, SC.

**Garlic.** In 1985, Robert Kirkpatrick of Eureka, Calif, grew an elephant garlic 18½ in in circumference, weighing 2 lb 12 oz.

**Gourd.** A record gourd of the zucca type measuring 93½ in in length was grown in 1986 by B. W. Saylor of Licking, MO.

**Grapefruit.** A 6-lb-8½-oz grapefruit was weighed for Joshua and Allison Sosnow in Tucson, Ariz on Dec 21, 1984.



**LARGEST VEGETABLES:** (Above) Charles Wilber of Crane Hill, Ala has trouble reaching the top of his 4 hybrid tomato plants which produced 1,368 lb of fruit. (Joyce M. Rodgers) (Above, right) Mrs. Eileen Chappel of Queensland, Australia, hugs her baby cucumber. This one was 37¼ lb but she grew a larger one of 48½ lb on May 13, 1986. (Brisbane Telegraph) (Right) June Rutherford of Hatch, NM, grew this 13½-in-long prize pepper.



**Kohlrabi.** A kohlrabi weighing 36 lb was grown in 1979 by Emil Krejci of Mt Clemens, Mich.

**Lemon.** Charlotte and David Knutzen of Whittier, Calif, re-

ported in May 1984 a lemon with a circumference of 29½ in, weighing 8½ lb.

**Lettuce.** A head of 25 lb was grown by C. Bowcock of Wil-  
laston, England in 1974.



**Lima Bean.** One bean pod measuring 14 in in length was grown by Norma McCoy of Hubert, NC, in 1979.

**Melons.** A watermelon weighing 260 lb was reported by Grace's Gardens in Sept 1985. The grower was Jason Bright of Hope, Ark. The largest cantaloupe reported was one of 55 lb grown by Gene Daughtridge of Rocky Mount, NC, in 1982.

**Mushrooms.** See *Fungi*, p. 121.

**Okra Stalk.** An okra plant 17 ft 6¼ in tall was grown by Charles H. Wilber of Crane Hill, Ala in 1983. This record was tied by a plant grown by Buddy & Evelyn Crosby of Brooksville, Fla in 1986.

**Onion.** An onion weighing 7 lb 8 oz was grown by Nelson W. Hope of Cardiff, Calif in 1965. It had a girth of 26 in and was reputedly 8 lb when first picked. An onion of 7 lb 11¼ oz was grown by W. Rodger of Fife, Scotland in 1984.

**Orange.** The heaviest orange is one weighing 5 lb 8 oz exhibited in Nelspruit, South Africa on June 19, 1981. It was the size of a human head, but was stolen.

**Parsnip.** A parsnip 142¾ in long was reported by K. Lloyd of Kydwelly, Wales in 1984. The heaviest was 10 lb 8½ oz grown by C. Moore of Peacehaven, W. Sussex, England in 1980.

**Peanut.** Ed Weeks of Tarboro, NC, grew a peanut 3½ in long in 1978.

**Pear.** A pear weighing 3.09 lb was harvested on May 10, 1979

by K. and R. Yeomans, Armidale, NSW, Australia.

**Pepper.** A NuMex Big Jim pepper 13½ in long was grown by June Rutherford of Hatch, NM, in 1975. A sweet pepper plant owned by Gordon Graham of Edmond, Okla grew to be 69½ in tall, yielding 61 peppers in 1985.

**Pineapple.** A pineapple weighing 17½ lb was harvested by Dole Philippines, Inc, at South Cotabato, Philippines, in Nov 1984. Pineapples up to 28.6 lb were reported in 1978 from Taranaca, Brazil.

**Potato.** A potato weighing 18 lb 4 oz was reported dug up by Thomas Seddal in his garden in Chester, England, on Feb 17, 1795. A yield was reported of 515 lb from a 2½-lb parent seed by C. Bowcock of Wilston, England, planted in 1977.

**Pumpkin.** The largest was grown by Robert Gancarz of Jacobstown, NJ in Oct 1986. It weighed 671 lb, measured 11 ft 11¼ in in circumference, and won the World Pumpkin Federation Contest.

**Radish.** A radish of 27 lb, 27½ in long, was grown by Ron Whitford in Wollongong, Australia, in Nov 1985.

**Squash.** A squash weighing 595.5 lb was grown by Edward Gancarz of Jacobstown, NJ in Oct 1986. It measured 11 ft in circumference.

**Strawberry.** A single berry weighing 8.17 oz was grown in July 1983 by George Anderson of Folkestone, England.





**Sweet Potato.** A 40¾ lb sweet potato was produced by Ovid Harrison, Kite, Ga on Oct 18, 1982.

**Tomato.** A 7 lb-12 oz tomato was grown by Gordon Graham of Edmond, Okla in 1986. Mr Graham also grew the longest tomato plant of 53 ft 6 in in 1985.

A single plant produced 12,312 tomatoes in 347 days. It was reported at the Tsukuba Science Expo, Japan on Sept 16, 1985.

The greatest weight was 342 lb 2 oz on a hybrid tomato plant grown by Charles H. Wilber of Crane Hill, Ala, in 1985, in a

group of 4 plants whose fruit totaled 1,368 lb.

**Turnip.** A turnip weighing 73 lb was reported in Dec 1768. In modern times the record is 35 lb 4 oz for a turnip grown by C. W. Butler of Nafferton, Humberside, England. A turnip of 51 lb was reported from Alaska in 1981.

**Zucchini.** A zucchini that weighed 36 lb 3 oz and was 29½ in long was grown by M. M. Ricci of Montreal, Canada in 1982. A "zucca" gourd weighing "about" 38 lb was reported.

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## GARDEN FLOWERS & PLANTS

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**Aspidistra.** The *aspidistra elatior* was introduced as a parlor palm to Britain from Japan and China in 1822. The largest measured 56 in in 1983.

**Begonia.** A begonia plant 3 ft 8 in tall was grown by Ellen Cassidy of Richmond, British Columbia, Canada in 1979.

**Fourteen-Leafed Clover.** A fourteen-leafed white clover (*Trifolium repens*) grown on one petiole was found by Randy Farland near Sioux Falls, SD, June 16, 1975.

**Dahlia.** A 16-ft-5-in dahlia was grown by Sam and Pat Barnes of Chattahoochee, Fla, in 1982.

**Gladiolus.** A gladiolus 8 ft 4½ in high was grown in 1981 by A. Breed of Melrose, Scotland.

**Hollyhock.** The tallest reported hollyhock (*Althaea rosea*) is

one of 24 ft 3 in grown by W. P. Walshe of Eastbourne, E. Sussex, England in 1961.

**Petunia.** A petunia plant 13 ft 8 in tall was grown by Bert Lawrence of Windham, NY over a 2-year period, 1984-85, indoors in winter and outdoors in summer.

**Philodendron.** A philodendron 1,114 ft long, and 31 years old, was grown by Prof F. J. Francis of the Univ of Mass. It was dismembered in Dec 1984.

**Rhododendron.** The largest species of rhododendron is the scarlet *Rhododendron arboreum*, examples of which reach a height of 65 ft on Mt Japfu, Nagaland, India. The cross section of the trunk of a *Rhododendron giganteum*, from Yunnan, China, reputedly 90 ft high, is preserved at Inverewe Garden, Highland, Scotland.



## Smallest Plants

The smallest flowering plant is the floating aquatic duckweed *Wolffia angusta* which is only 1/42nd of an inch in length and 1/85th of an inch in width. It weighs 1/190th of an oz; its fruit, resembling a minuscule fig, weighs 400,000 to the oz.

The smallest "plant" is a unicellular alga and is classified under *Protista*.

## Seaweed

The longest species of seaweed is the Pacific giant kelp (*Macrocystis pyrifera*), which does not exceed 196 ft in length. It can grow 18 in a day.

The greatest depth at which plant life has been found is 884 ft by Jark and Diane Littler (US) off San Salvador Island, Bahamas, in Oct 1984. These maroon-colored algae survived though 99.9995% of inlight was filtered out.

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## TREES

### Oldest Tree

The oldest recorded tree was a bristlecone pine (*Pinus longaeva*) designated WPN-114, which grew at 10,750 ft above sea level on the northeast face of Mt Wheeler in eastern Nevada. It was found to be about 5,100 years old, but was cut down with a chain saw. The oldest known living tree is the bristlecone pine named Methuselah at 10,000 ft on the Calif side of the White Mts, with a confirmed age of 4,600 years. In March 1974 it was reported that this tree produced 48 live seedlings. Dendrochronologists estimate the potential life span of a bristlecone pine at nearly 5,500 years, but that of a "big tree" (*Sequoia giganteum*) at perhaps 6,000 years. No single cell lives more than 30 years.

### Largest Forest

The largest afforested areas are the vast coniferous forests of the northern USSR, lying between latitude 55° N. and the Arctic Circle. The total wooded areas amount to 2,700 million acres (25% of the world's forests), of which 38% is Siberian larch. The USSR is 34% afforested.

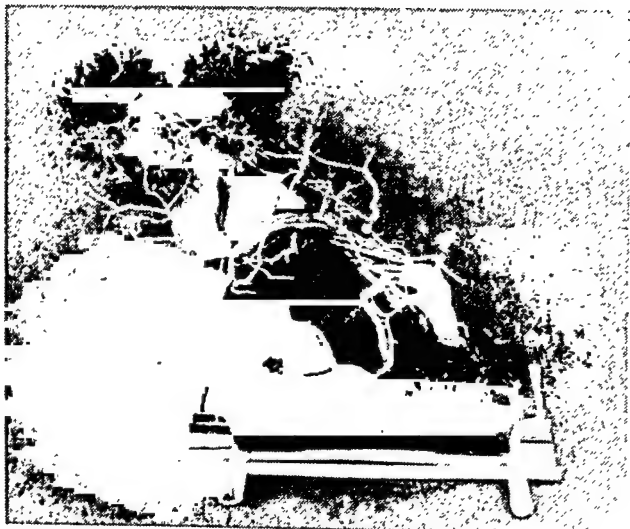
### Earliest Species of Tree

The earliest species of tree still surviving is the maidenhair tree (*Ginkgo biloba*) of Zhekiang, China, which first appeared about 160 million years ago, during the Jurassic era. It was "re-discovered" by Kaempfer (Netherlands) in 1690, and reached England c. 1754. It has been grown in Japan since c. 1100 where it was known as *ginkyo* (silver apricot) and now called *icho*.

### Fastest-Growing Tree

Discounting bamboo, which is not botanically classified as a tree,





**BONSAI PLANTS** live to a ripe old age. This one was 1,000 years old in 1980.



**MOST MASSIVE LIVING THING:** The "General Sherman" tree, a giant sequoia in Calif., stands almost 275 ft tall. It has a girth of 114.6 ft, and has grown for 2,500 years at the slow rate of 1/25th of an inch per year. (National Park Service)



associated material to at least 8,000 BC and more probably to 13,000 BC.

## Largest Orchids

The largest of all orchids is *Grammatophyllum speciosum*, native to Malaysia. Specimens up to 25 ft high have been recorded. The largest orchid flower is that of *Phragmipedium caudatum*, found in tropical areas of America. Its petals grow up to 18 in long, giving it a maximum outstretched diameter of 3 ft. The flower is, however, much less bulky than that of the stinking corpse lily (see *Largest Blooms*).

*Galeola foliata*, a saprophyte of the vanilla family, has been recorded at a height of 49 ft on decaying rainforest trees in Queensland, Australia. The smallest orchid is *Platystele jungermannoides*, found in Central America. Its flowers are 0.04 in across.

## Highest-Priced Orchid

The highest price ever paid for an orchid is £1,207.50 (then \$6,000), paid by Baron Schröder to Sanders of St Albans for an *Odontoglossum crispum* (variety *pittianum*) at an auction by Protheroe & Morris of Bow Lane, London, England, on March 22, 1906. A cymbidium orchid called "Rosanna Pinkie" was sold in the US for \$4,500 in 1952.



**FASTEST GROWING:**  
Bamboo, botanically a  
woody grass and not a  
tree, can reach 100 ft in  
height in less than 3  
months. These are in  
Hawaii. (Photo by Alex  
Hansen)





## KINGDOM FUNGI

Fungi were once classified in the subkingdom Protophyta of the kingdom Protista.

Martin Mortenson, a science teacher at Dodgeland Jr High, Reesele, Wis, found a puff ball (*Calvatia gigantea*) 76½ in in circumference in 1985.

A 72-lb example of the edible mushroom *Polyporus frondosus* was reported by Joseph Opple near Solon, Ohio, in Sept 1976. A mushroom of "nearly 100 lb" and 20 in in circumference was reported Oct 3, 1985 from Potenza, Italy.

The largest officially recorded tree fungus was a specimen of *Xyroporus (Fomes) nobilissimus*, measuring 56 in by 37 in and weighing at least 300 lb found by J. Hisey in Wash State in 1946.

### Most Poisonous Toadstool

The yellowish-olive death cup (*Amanita phalloides*) is regarded as the world's most poisonous fungus. From 6 to 15 hours after tasting, the effects are vomiting, delirium, collapse and death. Among its victims was Cardinal Giulio de' Medici, Pope Clement VII (1478-1534).

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## KINGDOM PROCARYOTA

### Largest and Smallest Bacteria

Anton van Leeuwenhoek (1632-1723) was the first to observe bacteria, in 1675. The largest of the bacteria is the sulphur bacterium *Beggiatoa mirabilis*, which is from 16 to 45 microns in width and which may form filaments several millimeters long.

The smallest of all free-living organisms are the pleuro-pneumonia-like organisms (PPLO) of the *Mycoplasma*. One of these, *Mycoplasma laidlawii*, first discovered in sewage in 1936, has a diameter during the early part of its life of only 100 millimicrons, or 0.000004 in. Examples of the strain known as H.39 have a maximum diameter of 300 millimicrons and weigh an estimated  $1.0 \times 10^{-16}$  of a gram.

### Fastest Bacteria

The rod-shaped bacillus *Bdellovibrio bacteriovorus*, by means of a polar flagellum rotating 100 times/sec, can move 50 times its own length of 2µm per second. This would be the equivalent of a human sprinter reaching 200 mph or a swimmer crossing the Channel in 6 min.

### Highest Bacteria

In Apr 1967 the US National Aeronautics and Space Administration (NASA) reported that bacteria had been discovered at an altitude of 135,000 ft (25.26 miles).

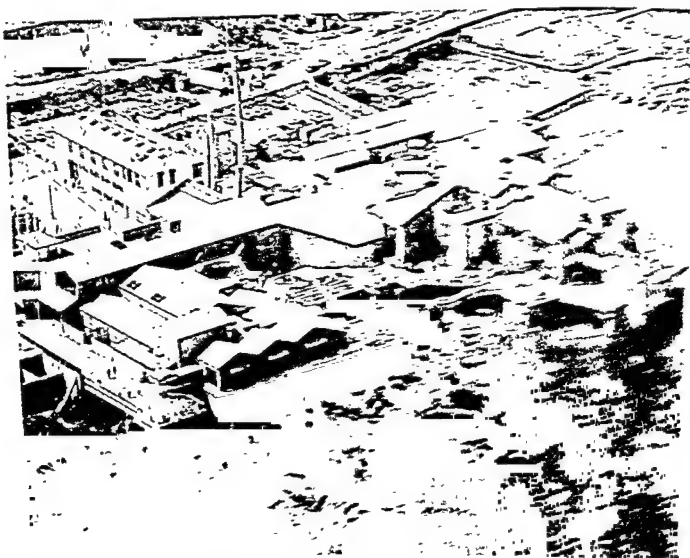


Canada (established 1922), which has an area of 11,173,000 sq ft (17,560 sq mi).

## Zoos

The earliest known collection of animals (not a public zoo) was that set up by Shulgi, a 3rd dynasty ruler of Ur in 2094-2047 bc at Puzurish in southeast Iraq.

Today there are an estimated 500 zoos in the world. The oldest known zoo is that at Schönbrunn, Vienna, Austria, built in 1752 by the Holy Roman Emperor Franz I for his wife Maria Theresa. The oldest privately owned zoo in the world is that of the Zoological Society of London, founded in 1826. Its collection is housed partly in Regent's Park, London (36 acres), and partly at Whipsnade Park, Bedfordshire (541 acres, opened 1931). At the stocktaking on Jan 1, 1987, it was found to house 10,638 specimens—2,628 mammals, 1,916 birds, 664 reptiles and amphibians, an estimated 2,097 fish, and an estimated total of 3,040 invertebrates. Locusts, bees and ants are excluded from these figures.



MARINE LIFE from the immediate area are housed in the world's largest aquarium on the shore of Monterey Bay. "Salt Water Pools" allow children to pet and pick up starfish, sea urchins, cucumbers and even rays. Besides, there is a volunteer program filled with seabirds. (Kathleen Glavin)

# The Natural World

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## STRUCTURE AND DIMENSIONS

The earth is not a true sphere, but flattened at the poles and hence an oblate spheroid. The polar diameter of the earth (7,899.806 miles) is 26.575 miles less than the equatorial diameter (7,926.381 miles). The earth has a pear-shaped asymmetry with the north polar radius being 148 ft longer than the south polar radius. There is also a slight ellipticity of the equator since its long axis (about Longitude 37°W.) is 522 ft greater than the short axis. The greatest departures from the reference ellipsoid are a protuberance of 240 ft in the area of Papua New Guinea, and a depression of 344 ft south of Sri Lanka (Ceylon) in the Indian Ocean.

The greatest circumference of the earth—at the equator—is calculated as 24,901.46 miles, compared with 24,859.73 miles at the meridian. The area of the surface is estimated to be 196,937,400 sq mi. The period of axial rotation, *i.e.* the true sidereal day, is 23 hours 56 min 4.0996 sec, mean time.

### Earth's Structure

The earth's mass is 6,585,600,000,000,000,000 tons and its density is 5.515 times that of water. The volume is an estimated 259,875,300,000 cu mi. The earth picks up cosmic dust but estimates vary widely with 30,000 metric tons a day being the upper limit. Modern theory is that the earth has an outer shell or lithosphere 50 miles thick, then an outer and inner rock layer or mantle extending 1,745 miles deep, beneath which there is an iron-rich core of radius measuring 2,164 miles. If the iron-rich core theory is correct, iron would be the most abundant element in the earth. At the center of the core the estimated density is 13.09 g/cm<sup>3</sup>, the temperature 4,000–4,500°C and the pressure 23,600 tons f/sq in.

# OCEANS

## Largest Ocean

The area of the earth covered by the sea is estimated to be 139,670,000 sq mi, or 70.92% of the total surface. The mean depth of the hydrosphere was at one time estimated to be 12,450 ft, but recent surveys suggest a lower estimate of 11,660 ft. The total weight of the water is estimated as  $1.45 \times 10^{18}$  tons, or 0.022% of the earth's total weight. The volume of the oceans is estimated to be 308,400,000 cu mi, compared with 8,400,000 cu mi of fresh water.

The largest ocean is the Pacific. Excluding adjacent seas, it represents 45.8% of the world's oceans and is 64,186,300 sq mi in area. The average depth is 12,925 ft. From Guayaquil, Ecuador, on the east, to Bangkok, Thailand, on the west, the Pacific could be said to stretch 10,905 miles in the shortest straight navigable line.

## Deepest Depths in the Ocean

The deepest part of the ocean was first pin-pointed in 1951 by the British Survey Ship *Challenger* in the Marianas Trench in the Pacific Ocean. The depth was measured by sounding and by echo-sounder and published as 5,960 fathoms (35,760 ft). Subsequent visits have resulted in slightly deeper measurements by multi-beam sonar now refined to 5,940 fathoms (35,640 ft) or 6.85 mi made by the Soviet research ship *Vityaz* in 1959. On Jan 23, 1960 the US Navy bathyscaphe *Trieste* descended to the bottom, which is 35,820 ft.

A metal object, say a pound ball of steel, dropped into water above this trench would take nearly 64 min to fall to the sea bed 6.79 miles below, where hydrostatic pressure is over 18,000 lb per sq in.

## Greatest Tides

The greatest tides in the world occur in the Bay of Fundy, which separates the peninsula of Nova Scotia from Maine and the Canadian province of New Brunswick. Burncoat Head in the Minas Basin, Nova Scotia, has the greatest mean spring range with 47.5 ft. A unique figure of 54½ ft was recorded at springs in 1953 at nearby Leaf Basin.

Tahiti experiences virtually no tide.

The normal interval between tides is 12 hours 25 min.

## Largest Gulf

The largest gulf in the world is the Gulf of Mexico, with an area of 580,000 sq mi and a shoreline of 3,100 miles from Cape Sable, Fla, to Cabo Catoche, Mexico.

## Largest Bay

The largest bay measured by shoreline length is Hudson Bay in northern Canada with a shoreline of 7,623 miles and an area of 317,500 sq mi. The area of the Bay of Bengal however is bigger—839,000 sq mi.

## Highest Sea-Mountain

The highest known submarine mountain or sea-mountain was one discovered in 1953 near the Tonga Trench between Samoa and New Zealand. It rises 28,500 ft from the sea bed, with its summit 1,200 ft below the surface.

## Longest Fjords

The longest "fjord" is the Nordvest Fjord arm of the Scoresby Sund in eastern Greenland, which extends inland 195 mi from the sea. The longest of Norwegian fjords is the Sogne Fjord, which extends 113.7 mi inland from Sygnefest to the head of the Lusterfjord arm at Skjolden. It averages barely 3 mi in width and has a deepest point of 4,085 ft.

## Greatest and Strongest Currents

The world's strongest currents are the Nakwakto Rapids, Slingsby Channel, British Columbia, Canada (Lat 51° 05'N., Long. 127° 30'W.) where the flow rate may reach 16.0 knots (18.4 mph).

## Highest Waves

The highest officially recorded sea wave was measured by Lt Frederic Margraff, USN from the USS *Ramapo* proceeding from Manila, Philippines, to San Diego, Calif. on the night of Feb 6-7, 1933 during a 68-knot (78.3 mph) hurricane. The wave was computed to be 112 ft from trough to crest.

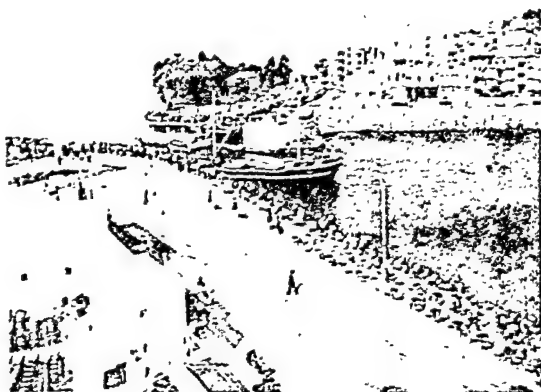
A landslip on July 9, 1958 caused a 100-mph wave to wash 1,720 ft high along the fjord-like Lituya Bay, Alaska

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## Highest Seismic Wave

The highest recorded seismic sea wave, or *tsunami*, (often mistakenly called a "tidal wave") was one of an estimated 278 ft, which appeared off Ishigaki Island, Ryukyu Chain, Apr 24, 1971. It tossed an 850-ton block of coral more than 1.3 miles. *Tsunami* (a Japanese word meaning: *tsu*, overflowing; *nami*, a wave) have been observed to travel at 490 mph.

**NARROWEST STRAIT:** The gap is only 45 yd wide between the Greek island of Euboea and the mainland.



## Straits

The longest straits in the world are the Tatarskiy Proliv or Tartar Straits between Sakhalin Island and the USSR mainland, running 497 miles from the Sea of Japan to Sakhalinsky Zaliv. This distance is marginally longer than the Malacca Straits, which extend 485 miles.

The broadest named straits are the Davis Straits between Greenland and Baffin Island, which at one point narrow to 210 miles. The Drake Passage between the Diego Ramírez Islands, Chile, and the South Shetland Islands, is 710 miles across.

The narrowest navigable straits are those between the Aegean island of Euboea and the mainland of Greece. The gap is only 45 yd wide at Khalkis. The Seil Sound, Strathclyde, Scotland, narrows to a point only 20 ft wide where a bridge joins the island of Seil to the mainland and is thus said by the islanders to span the Atlantic.

## Icebergs

The largest iceberg on record was an Antarctic tabular iceberg of over 12,000 sq mi (208 miles long and 60 miles wide) sighted 150 miles west of Scott Island, in the South Pacific Ocean, by the USS *Glacier* Nov 12, 1956. This iceberg was larger than Belgium.

The 200-ft-thick Arctic ice island T.1 (140 sq mi), discovered in 1946, was tracked for 17 years.

The tallest iceberg measured was one of 550 ft reported off western Greenland by the USCG icebreaker *East Wind* in 1958.



## LAND

There is satisfactory evidence that at one time the earth's land surface comprised a single primeval continent of 80 million sq mi, now termed Pangaea, and that this split about 190 million years ago, during the Jurassic period, into two super-continents, termed Laurasia (Eurasia, Greenland and North America) and Gondwanaland (comprising Africa, Arabia, India, South America, Oceania and Antarctica), named after Gondwana, India, which itself split 120 million years ago. The South Pole was apparently in the area of the Sahara as recently as the Ordovician period of c. 450 million years ago.

### Rocks

The age of the earth is generally considered to be within the range  $4,430 \pm 20$  million years, by analogy with directly measured ages of meteorites and of the moon. However, no rocks of this great age have yet been found on earth. Geological processes have presumably destroyed them.

The greatest reported age for any scientifically dated rock is 4,300 million years in the case of zircon crystals found by Bob Pidgeon and Simon Wilde, 935 miles northeast of Perth, W Australia. The find was reported in July 1986.

The largest exposed isolated monolith is the 1,237-ft-high Mt Augustus (3,627 ft above sea level), discovered June 3, 1858 about 200 miles east of Carnarvon, Western Australia. It is an up-faulted monoclinical gritty conglomerate 5 miles long and 2 miles across and thus twice the size of the celebrated monolithic arkose Ayer's Rock (1,100 ft), 250 miles southwest of Alice Springs, in Northern Territory, Australia.

It was estimated in 1940 that La Gran Piedra, a volcanic plug in the Sierra Maestra, Cuba, weighs 68,718 tons.

### Sheerest Wall

Mount Rakaposhi (25,498 ft) rises 19,652 vertical ft from the Hunza Valley, Pakistan, with an overall gradient of  $31^\circ$  over a horizontal distance of 32,808 ft.

The 3,200-ft-wide northwest face of Half Dome, Yosemite, Calif, is 2,200 ft high, but nowhere departs more than  $7^\circ$  from the vertical. It was first climbed (Class VI) in 5 days in July 1957 by Royal Robbins, Jerry Gallwas, and Mike Sherrick.

### Largest Peninsula

The world's largest peninsula is Arabia, with an area of about 1,250,000 sq mi.

### Largest and Smallest Continents

Of the earth's surface 41.25% or 81,200,000 sq mi is covered by continental masses and shelves of which only about two-thirds or 29.08% of the earth's surface (57,270,000 sq mi) is land above water, with a mean height of 2,480 ft above sea level. The Eurasian land mass is the largest, with an area (including islands) of 20,733,000 sq

mi. The Afro-Eurasian land mass, separated artificially only by the Suez Canal, covers an area of 32,233,000 sq mi or 56.2% of the earth's land mass.

The smallest is the Australian mainland, with an area of about 2,941,526 sq mi, which, together with Tasmania, New Zealand, New Guinea and the Pacific Islands, is described as Oceania.

## Largest Islands

Discounting Australia, which is usually regarded as a continental land mass, the largest island is Greenland (renamed Kalaallit Nunaat, May 1, 1979), with an area of about 840,000 sq mi. There is some evidence that Greenland is in fact several islands overlaid by an ice-cap without which it would have an area of 650,000 sq mi.

## Remotest Island

The largest island in a lake is Manitoulin Island (1,068 sq mi) in the Canadian (Ontario) section of Lake Huron. The island itself has a lake of 41.09 sq mi on it, called Manitou Lake, which is the world's largest lake within a lake, and in that lake are a number of islands.

The remotest inhabited island in the world is Tristan da Cunha, discovered in the South Atlantic by Tristão da Cunha, a Portuguese admiral, in Mar 1506. It has an area of 38 sq mi (habitable area 12 sq mi) and was annexed by the United Kingdom Aug 14, 1816. After evacuation in 1961 (due to volcanic activity), 198 islanders returned in Nov 1963. The nearest inhabited land is the island of St Helena, 1,320 miles to the northeast. The nearest continent, Africa, is 1,700 miles away.

## Newest Island

The newest island is the lava islet of Fukuto Kuokanoba near Iwo Jima in the Pacific reported in Jan 1986. It measures  $2,132 \times 1,476$  ft (1/10 of a sq mi) and is 40 ft above sea level.

## Largest Atolls

The largest atoll is Kwajalein in the Marshall Islands, in the central Pacific. Its slender 176-mile-long coral reef encloses a lagoon of 1,100 sq mi.

The atoll with the largest land area is Christmas Atoll, in the Line Islands, in the central Pacific Ocean. It has an area of 248 sq mi. Its principal settlement, London, is only  $2\frac{1}{2}$  miles distant from Paris, its other settlement.

## Greatest Archipelago

The greatest archipelago is the 3,500-mile-long crescent of over 13,000 islands that form Indonesia.



Volcán Cayambe (18,996 ft), Ecuador, at Longitude 77° 58' W. A mountaineer atop the summit would be moving at 1,038 mph relative to the earth's center due to the earth's rotation.

The world's tallest mountain measured from its submarine base (3,280 fathoms) in the Hawaiian Trough to peak is Mauna Kea (Mountain White) on the island of Hawaii, with a combined height of 33,476 ft, of which 13,796 ft are above sea level. Another mountain whose dimensions, but not height, exceed those of Mt Everest is the volcanic Hawaiian peak of Mauna Loa (Mountain Long) at 13,680 ft. The axes of its elliptical base, 16,322 ft below sea level, have been estimated at 74 mi and 53 mi. It should be noted that Cerro Aconcagua (22,834 ft) is more than 38,800 ft above the 16,000-ft-deep Pacific abyssal plain or 42,834 ft above the Peru-Chile Trench, which is 180 mi distant in the South Pacific.

**MT EVEREST** is being measured by satellite.



## Greatest Mountain Ranges

The greatest land mountain range is the Himalaya-Karakoram, which contains 96 of the world's 109 peaks of over 24,000 ft. The greatest of all mountain ranges is, however, the submarine Indian-East Pacific Oceans Cordillera, extending 19,200 miles from the Gulf of Aden to the Gulf of California by way of the seabed between Australia and Antarctica, with an average height of 8,000 ft above the base ocean depth. The longest mountain range above ground is the Andes of S America at about 5,000 mi.

## Longest Lines of Sight

Alaska's Mt McKinley (20,320 ft) has been sighted from Mt Sanford (16,237 ft) 230 mi away. McKinley, so named in 1896, was called Denali (Great One) in the Athabascan language. Vatnajökull (6,952 ft) on the eastern coast of Iceland, has been seen by refracted light from the Faeroe Islands 340 mi distant.

## Highest Halites

Along the northern shores of the Gulf of Mexico for 725 miles there

exist 330 subterranean "mountains" of salt, some of which rise more than 60,000 ft from bedrock and appear as the low salt domes first discovered in 1862.

## Greatest Plateau

The most extensive high plateau is the Tibetan Plateau in Central Asia. The average altitude is 16,000 ft and the area is 77,000 sq mi.

## Sand Dunes

The highest measured sand dunes are those in the Saharan sand sea of Isaouane-n-Tifernine of east central Algeria at Lat. 26° 42' N., Long. 6° 43' E. They have a wave-length of nearly 3 miles and attain a height of 1,410 ft.

## Deepest and Largest Depressions

The deepest depression so far discovered is the bed rock in the Bentley sub-glacial trench, Antarctica, at 8,326 ft below sea level.

The deepest exposed depression on land is the shore surrounding the Dead Sea, now 1,312 ft below sea level. The deepest point on the bed of this saltiest of all lakes is 2,388 ft below the Mediterranean. The deepest part of the bed of Lake Baykal in Siberia, USSR, is 4,872 ft below sea level.

The greatest submarine depression is a large area of the floor of the northwest Pacific which has an average depth of 15,000 ft.

The largest exposed depression in the world is the Caspian Sea basin in the Azerbaydzhani, Russian, Kazakh, and Turkmen republics of the USSR and northern Iran. It is more than 200,000 sq mi, of which 143,550 sq mi is lake area. The preponderant land area of the depression is the Prikaspiyskaya Nizmennost', lying around the northern third of the lake and stretching inland for a distance of up to 280 miles.

## Longest and Shortest Rivers

The two longest rivers are the Amazon (*Amazonas*), flowing into the South Atlantic, and the Nile (*Bahr-el-Nil*) flowing into the Mediterranean. Which is the longer is more a matter of definition than of simple measurement.

Not until 1971 was the true source of the Amazon discovered by Loren McIntyre (US) in the snow-covered Andes of southern Peru. His expedition was sponsored by the Interamerican Geodetic Survey and the National Geographic Society. The Amazon begins with snowbound lakes and brooks that converge to form the Apurimac, a torrent in a deep canyon. The Apurimac joins other streams to become the Ene, the Tambo, then the Ucayali. From the confluence of the Ucayali and Marañon above Iquitos, Peru, the river is called Amazon for its final 2,300 miles as it flows eastward through Brazil into the Atlantic Ocean. Some of its tributaries—particularly the Rio Negro and the Rio Madeira—are themselves among the dozen largest rivers in the world. The Amazon has several mouths that widen toward the sea; thus the exact point of the river's end is uncertain. If the Para River estuary, the most distant mouth, is counted, the Amazon length is approximately 4,195 miles. Because of seasonal flooding and

changes in channels, geographers tend to round off the length at 4,000 miles.

The first explorer to paddle the full length of the Amazon was Piotr Chmielinski (b 1953, Poland) who had been one of the expedition traversing the Colca Canyon (see page 138). Joe Kane (b 1953, San Francisco) walked 200 mi at the start and then joined in the paddling to Belem. Kayaks were used almost the whole way but a raft was needed over some rough rapids, where other members of the party joined in the paddling. The trip took 174 days, from Aug 29, 1985 to Feb 19, 1986, and was sponsored by Canoandes Expeditions, Inc (Wyoming).

The length of the Nile watercourse, as surveyed by M. Devroey (Belgium) before the loss of a few miles of meanders due to the formation of Lake Nasser, behind the Aswan High Dam, was 4,145 miles. This course is the hydrologically acceptable one from the source in Burundi of the Luvironza branch of the Kagera feeder of the Victoria Nyanza via the White Nile (*Bahr-el-Jebel*) to the delta.

The world's shortest named river is the D River, Lincoln City, Ore, which connects Devil's Lake to the Pacific Ocean and is 440 ft long at low tide.

### Largest Basin and Longest Tributaries

The largest river basin is that drained by the Amazon (4,007 miles). It covers about 2,720,000 sq mi, has about 15,000 tributaries and sub-tributaries, of which four are more than 1,000 miles long. This



**WHERE THE BLACK WATERS MEET THE BROWN:** The point in the Amazon River near Manaus, Brazil, where the Rio Negro churns its black waters into the muddier waters of the main Amazon stream. The waters travel several miles downstream before merging. The first explorers to travel the full length of the world's longest river were the men in these boats, Piotr Chmielinski and Joe Kane.

includes the longest of all tributaries, the Madeira, with a length of 2,100 miles, which is surpassed by only 14 rivers in the whole world.

The longest sub-tributary is the Pilcomayo (1,000 miles long) in South America. It is a tributary of the Paraguay River (1,500 miles long), which is itself a tributary of the Paraná (2,500 miles).

## Greatest Flow

The greatest flow of any river is that of the Amazon, which discharges an average of 4,200,000 cu ft of water per sec into the Atlantic Ocean, rising to more than 7 million "cusecs" in full flood. The lower 900 miles of the Amazon average 50-60 ft and in some places reach 300 ft in depth.

The flow of the Amazon exceeds the flow of the next 8 largest rivers, is 60 times greater than that of the Nile, and its 8 trillion gallons a day would furnish 20 times the daily water need of the US for drinking, industry, farming and electric power.

## Longest Estuary

The longest estuary is that of the often-frozen Ob', in the northern U.S.S.R., at 550 miles. It is up to 50 miles wide.

## Longest Waterfall

The highest waterfall (as opposed to a vaporized "Bridal Veil") is Salto Angel (Angel Falls), in Venezuela, on a branch of the Carrao, an upper tributary of the Caroní, with a total drop of 3,212 ft in the longest single drop, of 2,648 ft. It was rediscovered in 1935 by US pilot named Jimmy Angel (d. Dec 8, 1956). He later crashed on Oct 9, 1937. The fall, known by the Indians as Cherun-ke, was first reported by Ernesto Sanchez La Cruz in 1910.

## Longest Waterfall Flow

On the basis of the average annual flow, the greatest waterfalls are Inyanga (formerly Stanley) Falls in Zaire with 600,000 cusec (cu ft/sec). The Guaira (Salto das Sete Quedas) on the Alto Paraná river between Brazil and Paraguay at times attained a peak flow rate of 1,000 cusec (cu ft/sec). The completion of the Itaipu dam in 1982 ended this claim to fame.

It has been calculated that, when some 5½ million years ago the terranean basins began to be filled from the Atlantic through the Straits of Gibraltar, a waterfall was formed 26 times greater than the Guaira and perhaps 2,625 ft high.

## Longest Waterfalls

The widest waterfalls are Khône Falls (50-70 ft high) in Laos, with a width of 6.7 miles and a flood flow of 1,500,000 cu ft per sec.

The widest waterfall in the Americas is the spectacular Iguazú near Argentina-Brazil Paraguay intersect which is 2½ mi wide and 237 ft high, with a volume about twice that of Niagara (although this varies yearly—in 1975 it dried up for 4 days).

## Longest and Fastest-Moving Glaciers

It is estimated that 6,020,000 sq mi, or about 10.5% of the earth's

land surface, is permanently glaciated. The longest glacier known is the Lambert Glacier, discovered by an Australian aircraft crew in Australian Antarctic Territory in 1956-57. It is up to 40 miles wide and, with its upper section known as the Mellor Glacier, it measures at least 250 miles in length. With the Fisher Glacier limb, the Lambert forms a continuous ice passage about 320 miles long. The longest Himalayan glacier is the Siachen (47 miles) in the Karakoram range, though the Hispar and Biafo combine to form an ice passage 76 miles long. The fastest-moving major glacier is the Quarayaq in Greenland which flows 65-80 ft per day.

## Greatest Avalanches

The greatest avalanches, though rarely observed, occur in the Himalayas, but no estimate of their volume has been published. It was estimated that 120 million cu ft of snow fell in an avalanche in the Italian Alps in 1885. (See also *Disasters*.)

The 250-mph avalanche triggered by the Mt St Helens eruption in Wash May 18, 1979 was estimated to measure 96 billion cu ft (see pages 145 and 146).

## Largest Lakes

The largest inland sea or lake is the Kaspiskoye More (Caspian Sea) between southern USSR and Iran. It is 760 miles long and its total area is 139,000 sq mi. Of the total area, 55,280 sq mi (38.6%) are in Iran, where the lake is named the Darya-ye-Khazar. Its maximum depth is 3,360 ft and its surface is 93 ft below sea level. Its estimated volume is 21,500 cu mi of saline water. Its surface has varied between 105 ft below sea level (11th century) and 72 ft (early 19th century).

The fresh-water lake with the greatest surface area is Lake Superior, one of the Great Lakes. The total area is about 31,800 sq mi, of which 20,700 sq mi are in the US (Minn, Wis and Mich) and 11,100 sq mi in Ontario, Canada. It is 600 ft above sea level. The fresh-water lake with the greatest volume is Baykal with an estimated volume of 5,520 cu mi.

## Underground Lake

Reputedly the largest underground lake is the Lost Sea, which lies 300 ft underground in the Craighead Caverns, Sweetwater, Tenn. Discovered in 1905, it covers an area of 4½ acres.

## Largest Lagoon

The largest is Lagoa dos Patos in southern Brazil. It is 158 mi long and extends over 4,110 sq mi.

## Highest Lake

The highest steam-navigated lake is Lake Titicaca (maximum depth 1,214 ft), with an area of about 3,200 sq mi (1,850 sq mi in Peru, 1,350 sq mi in Bolivia), in South America. It is 130 mi long and is situated at 12,506 ft above sea level.

There is an unnamed glacial lake near Mt Everest at 19,300 ft. Tibet's largest lake, Nam Tso (772 sq mi), lies at an elevation of 15,060 ft.





Larger in mass, however, is the Rainbow Bridge, Utah, discovered on Aug 14, 1909, which has a span of 278 ft but is over 22 ft wide.

The highest natural arch is the sandstone arch 25 miles west-northwest of K'ashih, Sinkiang, China, estimated in 1947 to be nearly 1,000 ft tall, with a span of about 150 ft.

## Longest and Largest Cave and Cavern

The most extensive cave system is under the Mammoth Cave National Park, Ky, first discovered in 1799. On Sept 9, 1972 an exploration group led by Dr John P. Wilcox completed a connection, pioneered by Mrs Patricia Crowther, on Aug 30, between the Flint Ridge Cave system and the Mammoth Cave system, so making a combined system with a total mapped passageway which is now over 330 mi.

The largest cave chamber is the Sarawak Chamber, Lobang Nasip Bagus, in the Gunung Mulu National Park, Sarawak, discovered and surveyed by the 1980 British-Malayasian Mulu Expedition. Its length is 2,300 ft; its average width is 980 ft and it is nowhere less than 230 ft high. It could garage 7,500 buses; Yankee Stadium would fit into one end.

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## DEEPEST CAVES BY COUNTRIES

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These depths are subject to continuous revisions.

### *Depth*

### *in Ft*

5,036	Réseau Gouffre Jean Bernard	France
4,495	Snieżnaja Piezcziera	USSR
4,390	Puerta de Illamina	Spain
4,108	Sistema Huautla	Mexico
3,999	Schwersystem	Austria
3,964	Complesso Fighiera Corchia	Italy
3,304	Anou Ifflis	Algeria
2,993	Slebenhengste system	Switzerland
2,944	Jama u Vjetrena brda	Yugoslavia
2,854	Nettlebed system	New Zealand
2,543	Jaskinia Snieżna	Poland
2,464	Ghar Parau, Zagros	Iran

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## Tallest Stalagmite

The tallest known stalagmite is La Grande Stalagmite in the Aven Armand cave, Lozère, France, which has attained a height of 98 ft from the cave floor. It was found in Sept 1897.

## Longest Stalactite

The longest known stalactite is a wall-supported column extending 195 ft from roof to floor in the Cueva de Nerja, near Málaga, Spain. Probably the longest free-hanging stalactite is one of 23 ft in the Poll, an Ionian cave in County Clare, Ireland.

The tallest cave column is probably the 128-ft high Flying Dragon Pillar in the Nine Dragons Cave (Daji Dong), Guizhou, China.

## Largest and Deepest Gorges

The largest land gorge is the Grand Canyon on the Colorado River in north-central Ariz. It extends from Marble Gorge to the Grand Wash Cliffs, over a distance of 217 miles, varies in width from 4 to 13 miles and is up to 5,300 ft deep.

The deepest land gorge is the Colca River Canyon in southern Peru, where the sides rise to a maximum of 14,339 ft on one side and about 10,607 ft on the other. It was first traversed by a Polish kayak team called CANOANDES from the Univ of Krakow, May 12–June 14, 1981.

The submarine Labrador Basin Canyon is c. 2,150 miles long.

The deepest canyon in low relief territory is Hell's Canyon, dividing Oregon and Idaho. It plunges 7,900 ft from the Devil Mountain down to the Snake River.

stretch of the Kali River in central Nepal flows 18,000 ft below anking summits of the Dhaulagiri and Annapurna groups.

ie deepest submarine canyon yet discovered is one 25 miles south sperance, Western Australia, which is 6,000 ft deep and 20 miles

## gest Desert

early an eighth of the world's land surface is arid with an annual fall of less than 9.8 in. The Sahara in North Africa is the largest in world. At its greatest length, it is 3,200 miles from east to west. n north to south it is between 800 and 1,400 miles. The area :red by the desert is about 3,250,000 sq mi. The land level varies 1,436 ft below sea level in the Qattara Depression, Egypt, to the ntain Emi Koussi (11,204 ft) in Chad. The diurnal temperature e in the western Sahara may be more than 80°F.

## gest Swamp

ie largest is in the basin of the Pripet or Pripyat River, a tributary e Dnieper in the USSR. These swamps cover an estimated area of 25 sq mi.

## Cliffs

ie highest sea cliffs yet pinpointed anywhere in the world are those ie north coast of east Molokai, Hawaii, near Umilehi Point, which end 3,300 ft to the sea at an average gradient of more than 55°.

## WEATHER\*

*The meteorological records given here necessarily relate largely to the last 140 to 160 years, since data before that time are both sparse and often unreliable. Reliable registering thermometers were introduced as recently as c. 1820.*

It is believed that 1.2 million years ago the world's air temperature averaged 95°F.

The longest continuous observations have been maintained at the Radcliffe Observatory, Oxford, England since 1815, though discontinuous records have enabled the Chinese to assert that 903 BC was a very bad winter.

### Greatest Temperature Ranges

The highest *shade* temperature ever recorded was 136.4°F at Al' Aziziyah (El Azizia), Libya, on Sept 13, 1922.

The lowest *screen* temperature ever recorded was -128.6°F at Vostok (11,220 ft above sea level), Antarctica on July 22, 1983. A platinum thermometer was used. The coldest permanently inhabited place is the Siberian village of Oymyakon (pop. 600) in the USSR, where the temperature reached -96°F in 1964.

The greatest temperature variation recorded in a day is 100°F (a fall from 44°F to -56°F) at Browning, Mont, Jan 23-24, 1916. The most freakish rise was 49°F in 2 min at Spearfish, SD, from -4°F at 7:30 a.m. to 45°F at 7:32 a.m. Jan 22, 1943.

The greatest recorded temperature ranges in the world are around the Siberian "cold pole" in the eastern USSR. Temperatures in Verkhoyansk (67°33'N, 133°23'E) have ranged 192°F from -94°F (unofficial) to 98°F.

### Humidity and Discomfort

Human discomfort depends not merely on temperature but on the combination of temperature, humidity, radiation and wind speed. The US Weather Service uses a Temperature-Humidity Index, which equals two-fifths of the sum of the dry and wet bulb thermometer readings plus 15. A THI reading of 98.2 has been recorded twice in Death Valley, Calif—on July 27, 1966 (119°F, 31% humidity) and on Aug 12, 1970 (117°F, 37% humidity). A person driving at 45 mph in a car without a windshield in a temperature of -45°F would, by the chill factor, experience the equivalent of -125°F, which is within 3.5°F of the world record.

### Most Equable Temperature

The location with the most equable recorded temperature over a short period is Garapan, on Saipan, in the Mariana Islands, Pacific Ocean. During the nine years 1927-35, inclusive, the lowest temperature recorded was 67.3°F Jan 30, 1934, and the highest was 88.5°F Sept 9, 1931, giving an extreme range of 21.2°F.

\*For more specialized weather records, see "Weather Facts and Feats," (2nd edition) a Guinness Superlatives Book (Sterling).

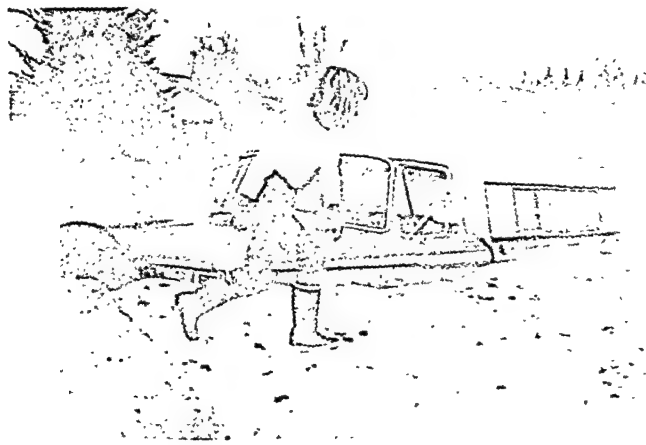
## Upper Atmosphere

The lowest temperature ever recorded in the atmosphere is  $-225.4^{\circ}\text{F}$  at an altitude of about 50 to 60 miles, during noctilucent cloud research above Kronogard, Sweden, July 27-Aug 7, 1963.

A jet stream moving at 408 mph at 154,200 ft (29.2 miles) was recorded by Skua rocket above South Uist, Outer Hebrides, Scotland on Dec 13, 1967.

## Thickest Ice

The greatest recorded thickness of ice on the earth's surface is 2.9 miles (15,670 ft) measured by radio echo soundings from a US Antarctic Research aircraft at  $69^{\circ} 9' 38'' \text{ S}$ ,  $135^{\circ} 20' 25'' \text{ E}$  in Wilkes Land on Jan 4, 1975.



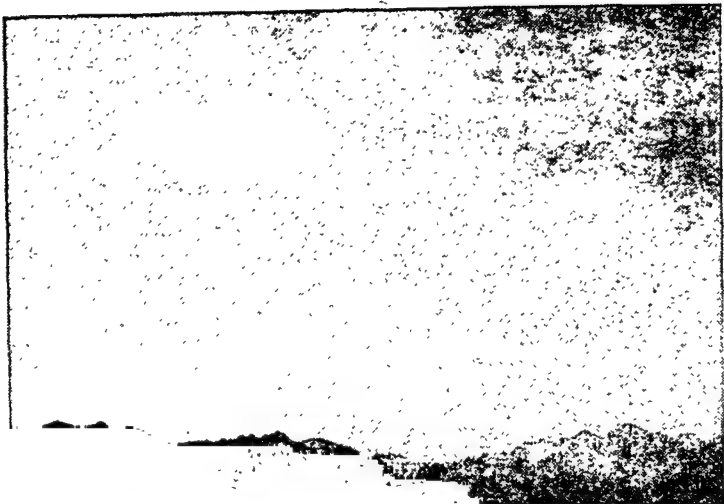
### HAIL PILED HIGH: ▲

During a furious summer thunderstorm in Cheyenne, Wyo, Aug 2, 1985, a 3-ft cover of hailstones fell, along with 6 in of rain in 4 hours.

It was like someone opened a faucet overhead," said the mayor. Sudden floods followed that killed a dozen people.



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**HOTTEST STREAK:** Death Valley, Calif, had 43 consecutive days of  $120^{\circ}\text{F}$  heat in 1917.



**NOCTILUCENT CLOUDS** retain sunlight after sunset due to their extreme height—50 mi. Seen here over Antarctica, they are thought to contain ice crystals or meteoric dust. This phenomenon is being observed from 15 stations in northern Europe where it occurs irregularly—43 nights in 1979 and only 15 in 1970. (*Science Photo Library*)

## Waterspouts

The highest waterspout of which there is reliable record was one observed May 16, 1898, off Eden, NSW, Australia. A theodolite reading from the shore gave its height as 5,014 ft. It was about 10 ft in diameter.

## Lightning

The visible length of lightning strokes varies greatly. In mountainous regions, when clouds are very low, the flash may be less than 300 ft long. In flat country with very high clouds, a cloud-to-earth flash may measure 4 miles, though in the most extreme cases such flashes have been measured at 20 miles. The intensely bright central core of the lightning channel is extremely narrow. Some authorities suggest that its diameter is as little as half an inch. This core is surrounded by a "corona envelope" (glow discharge) which may be 10–20 ft wide.

The speed of a lightning discharge varies from 100 to 1,000 miles per sec for the downward leader track, and reaches up to 87,000 miles per sec (nearly half the speed of light) for the powerful return stroke.

Every few million strokes there is a giant discharge, in which the cloud-to-earth and the return lightning strokes flash from and to the top of the thunder clouds.

In these "positive giants" energy of up to 3,000 million joules ( $3 \times 10^{16}$  ergs) has been recorded. The temperature reaches about 30,000°C, which is more than five times greater than that of the surface of the sun.

## Deepest Permafrost

The deepest recorded permafrost is more than 4,500 ft, reported from the upper reaches of the Viluy River, Siberia, USSR, in Feb 1982.

## Most Intense Rainfall

Difficulties attend rainfall readings for very short periods but the figure of 1.50 in in 1 min at Barst. Guadeloupe, Nov 26, 1970, is regarded as the most intense recorded in modern times.

## Longest-Lasting Rainbow

A rainbow lasting for over 3 hours was reported from North Wales on Aug 14, 1979.

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## OTHER WEATHER RECORDS

**Hottest Place** (Annual mean) Dallol, Ethiopia, 94° F, 50-66. In Death Valley, Calif, 120°F or more was recorded on 43 consecutive days, July 6-Aug 17, 1917. At Mar: Bar, W Australia (maximums 121°F) maximum over 60°F for 160 consecutive days at 31, 1923-Apr 7, 1924. Wyndham, W Australia had 333 days in 1946 when temperature reached 90°F.

**Coldest Place** (Extrapolated annual mean) Polus Nedostupnosti, Pole of Cold (78° S, 106° E), Antarctica, -72°F (16°F lower than Pole). (Coldest measured mean) Plateau Station, Antarctica, -70°F.

**Greatest Rainfall** (24 hours) 162 in, Cilaos, La Réunion, Indian Ocean, March 15-16, 1952. (Calendar month) 366.14 in, Cherrapunji, Meghalaya, India, July, 1861. (12 months) 341.78 in, Cherrapunji, Meghalaya, Aug 1, 1860-July 31, 1961.

**Greatest Snowfall** (24 hours): 76 in, Silver Lake, Colo, Apr 14-15, 1921. (12

months) 1,224.5 in, Paradise, Mt Rainier, Wash, Feb 19, 1971-Feb 18, 1972. (Single): 189 in, Mt Shasta Ski Bowl, Calif (Greatest depth of snow on ground), 27.7 in at Helen Lake, Mt Lassen, Calif Apr 1983.

**Wettest Place** (Annual mean) Tutunendo, Colombia, average 463.4 in.

**Barometric Pressure** (Highest) 1,083.8 mb (32 in), Agata, Siberia, USSR (alt. 862 ft) Dec 31, 1968. (Lowest): 870 mb (25.69 in), 300 miles west of Guam in the Pacific Ocean on Oct 12, 1979 by the US Air Weather Service. The USS *Repose*, a hospital ship, recorded 856 mb (25.55 in) in the eye of a typhoon off Okinawa on Sept 16, 1945.

**Maximum Sunshine** (Year): 97% (over 4,300 hours), eastern Sahara. St Petersburg, Fla, had 768 consecutive days, Feb 9, 1967-March 17, 1969.

**Minimum Sunshine:** Nil at North Pole—for winter stretches of 186 days.

**Thunder Days (Year):** 322 days, Bogor (formerly Buitenzorg), Java, Indonesia (average, 1916-19). Between Lat 35° N and 35° S there are some 3,200 thunderstorms each 12 nighttime hours, some of which can be heard at a range of 18 miles.

**Largest Raindrop**  
0.37 in on Aug 7, 1953 at Univ of Illinois Airport.

**Highest Surface**  
**Wind-speed:** 231 mph, Mt Washington (6,288 ft), NH, Apr 12, 1934. 280 mph in a tornado at Wichita Falls, Tex., Apr 2, 1958.

**Windiest Place:** The Commonwealth Bay, George V Coast, Antarctica, where gales reach 200 mph.

**Largest Hailstones:** 2¼ lb reported to have killed 92 people in Bangladesh April 14, 1986. The *Canton Evening News* (Ohio) reported on Apr 14, 1981 that 5 were killed and 225 injured by a hailstorm with stones weighing up to 30 lb.

**Driest Place:** Desierto de Atacama, near Calama, Chile, almost rainless for about 400 years to 1971, although several times a century a squall may strike a small area of it.

**Most Rainy Days (Year):** Mt Waialeale (5,148 ft) Kauai, Hawaii, up to 350 days per year.

**Longest Sea Level Fogs**  
(Visibility less than 1,000 yd): Fogs persist on the Grand Banks, Newfoundland, Canada, where the average is more than 120 days per year.

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## EARTHQUAKES

It is estimated that each year there are some 500,000 detectable seismic or micro-seismic disturbances of which 100,000 can be felt and 1,000 cause damage. The deepest recorded hypocenters are of 447 miles in Indonesia in 1933, 1934 and 1943.

### Worst Death Toll

The greatest loss of life occurred in the earthquake which rocked every city of the Near East and eastern Mediterranean c. July 1201. Contemporary accounts estimate the loss of life at 1.1 million. Less uncertain is the figure of 830,000 fatalities in the prolonged quake (*tichen*) in the Shensi, Shansi and Honan provinces of China, of 1556 Feb 2 (New Style) (Jan 23 Old Style). The highest death toll in modern times has been in the Tangshan earthquake (magnitude 8.2) in eastern China on 1976 July 27 (local time was 3:00 a.m. on July 28). A first figure published Jan 4, 1977 revealed 655,237 killed, later adjusted to 750,000. On Nov 22, 1979, the New China News Agency unaccountably reduced the death toll to 242,000. As late as Jan 1982, the site of the city was still a prohibited area. The greatest material damage was in the earthquake on the Kwantō plain, Japan, at 11:58 a.m. of 1923 Sept 1 (magnitude 8.2, epicenter in Latitude 35° 15' N., Longitude 139° 30' E.). In Sagami Bay, the sea bottom in one area sank 1,310 ft. The official total of persons killed and missing in this earthquake,



called the *Shinsai* or Great Quake, and the resultant fires was 142,800. In Tokyo and Yokohama 575,000 dwellings were destroyed. The cost of the damage was estimated at \$2,800 million. It has however been estimated that a 7.5-magnitude shock (G-R scale) 30 miles north of Los Angeles would result in damage estimated at \$75 billion.

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## VOLCANOES

The total number of known active volcanoes is 850 of which many are submarine. The greatest concentration is in Indonesia, where 77 of its 167 volcanoes have erupted within historic times. The name "volcano" was first applied to the now dormant Vulcano Island in the Aeolian group in the Mediterranean, and that name derives from Vulcan, Roman god of destructive fire.

### Highest Volcanoes

The highest extinct volcano in the world is Cerro Aconcagua (Stratovolcano), 22,834 ft high, on the Argentine side of the Andes. It was first climbed on Jan 14, 1897 by Mathias Zurbriggen, and was the highest mountain climbed anywhere until June 12, 1907.

The highest dormant volcano is Ojos del Salado (22,588 ft). It has a small steaming crater below the summit at about 21,325 ft which makes it the highest active volcano as well. The volcano which has been regarded until now as the highest active is Volcán Antofal (18,162 ft) in Argentina, though a more definite claim is made for Volcán Guayatiri or Guallatiri (19,918 ft), in Chile, which erupted in 1959, and was still smoking in 1985.

### Longest Lava Flow

The longest lava flow, known as *pahoehoe* (twisted cord-like solidifications), is that from the eruption of Laki in southeast Iceland which flowed 40½–43½ miles. The largest known prehistoric flow is the Roza basalt flow in North America, c. 15 million years ago, which had an unsurpassed length (300 miles), area (15,400 sq mi) and volume (300 cu mi).

### Largest Crater

The world's largest *caldera* or volcano crater is that of Toba in north-central Sumatra, Indonesia, covering 685 sq mi.

### Most Recent Eruption

The total volume of matter discharged in the eruption of Tambora volcano on the island of Sumbawa, in Indonesia, Apr 5–7, 1815, has been estimated as 36.4 cu mi. The energy of this 1,395-mph eruption which lowered the height of the island from 13,450 ft to 9,350 ft, was  $4 \times 10^{19}$  joules. The volcano thus lost 4,100 ft in height and a crater 10 mi in diameter was formed. This compares with a probable 15 cu mi ejected by *Santorini* and 4.3 cu mi ejected by *Krakatoa*. The internal pressure causing the Tambora eruption has been estimated as 500,000 lb per sq in.

**LARGEST ACTIVE VOLCANO:** On the big island of Hawaii, high up at 13,677 ft, is the peak of Mauna Loa, which erupted as recently as Apr 1984, and at all times its molten lava can be seen. (*Colorific*)



The ejecta in the Taupo eruption in New Zealand c. 130 AD has been estimated at 33,000 million tons of pumice moving at one time at 400 mph. It flattened 6,180 sq mi (over 26 times the devastated area of Mt St Helens). Less than 20% of the  $15.4 \times 10^9$  tons of pumice ejected in this most violent of all documented volcanic events fell within 125 miles of the vent.

### Largest Active Volcano

The world's largest active volcano is Mauna Loa (13,677 ft), Hawaii, which erupted in 1975 and in Apr 1984. It has a dome 75 mi long and 64 mi wide with a lava flow that occupies more than 2,000 sq mi of the island. Its pit crater measures 4 sq mi and is 500-600 ft deep. It has averaged one eruption every  $3\frac{1}{2}$  years since 1832.

### Largest Eruption in US

Mt St Helens, located in the Cascade Range in Wash State, about 50 miles northeast of Portland, Ore, had lain dormant for 123 years when it began to show signs of becoming active and violent in Mar 1980. By early May a bulge about 330 ft high was noticeable, and on May 18 a blast 500 times greater than the 20 kiloton atomic bomb that fell on Hiroshima, broke out the whole north side of the mountain. Lava flowed out at a speed of 250 mph.

### Greatest Explosion

The greatest explosion (possibly since Santorini in the Aegean Sea c. 1470 BC) occurred c. 10:00 a.m. (local time), or 3:00 a.m. G.M.



## Hurricane Damage

The hurricane named Frederic in 1979 caused the most damage along the US coastline, according to the National Hurricane Center. \$2.3 billion is estimated. The big hurricane, Alicia, in 1983 did \$300 million less damage.

## Cloud Extremes

The highest standard cloud form is cirrus, averaging 27,000 ft and above, but the rare nacreous or mother-of-pearl formation sometimes reaches nearly 80,000 ft. Cirrus cloud at 26,500 ft contains unfrozen but supercooled water at  $-31^{\circ}\text{F}$ . The lowest is stratus, below 3,500 ft. The cloud form with the greatest vertical range is cumulo-nimbus, which has been observed to reach a height of nearly 68,000 ft in the tropics.

## Mirages

The largest mirage on record was that sighted in the Arctic at  $83^{\circ}\text{N}$ ,  $103^{\circ}\text{W}$ . by Donald B. MacMillan in 1913. This type of mirage, known as the Fata Morgana, appeared as the same "hills, valleys, snow-capped peaks extending through at least 120 degrees of the horizon" that Peary had misidentified as Crocker Land 6 years earlier.

On July 17, 1939, a mirage of Snaefell Jokull glacier (4,715 ft) on Iceland was seen from the sea at a distance of 335–350 miles.

## GEYSERS

### Tallest Geyser

The Waimangu ("black water" in the Maori language) geyser, in New Zealand, erupted to a height in excess of 1,500 ft in 1904, but has not been active since it erupted violently at 6:20 a.m. Apr 1, 1917, killing 4 people.

Currently the world's tallest active geyser is the US National Park Service Steamboat Geyser, in Yellowstone National Park, Wyo, which erupted at intervals ranging from 5 days to 10 months between 1962 and 1969 to a height of 250–380 ft.

The Geysir ("gusher") near Mt Hekla in south-central Iceland, from which all others have been named, spurts, on occasion, to 180 ft, while the adjacent Strokkur, reactivated by drilling in 1963, spurts at 10–15 min intervals.

### Greatest Geyser Discharge

The greatest measured water discharge from a geyser has been 990,000 gallons by the Giant Geyser in Yellowstone National Park, Wyo, which has been dormant since 1955.

# The Universe & Space

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## Light-Year

That distance traveled by light (speed 186,282.397 miles per sec, or 670,616,629.2 mph, *in vacuo*) in one tropical (or solar) year (365.24219878 mean solar days at Jan 0, 12 hours Ephemeris time in 1900 AD) and is 5,878,499,814,000 miles. The unit was first used in March 1888, and fixed at this constant in Oct 1983.

## Magnitude

A measure of stellar brightness such that the light of a star of any magnitude bears a ratio of 2.511886 to that of a star of the next magnitude. Thus a fifth magnitude star is 2.511886 times as bright, while one of the first magnitude is exactly 100 (or  $2.511886^5$ ) times as bright, as a sixth magnitude star. In the case of such exceptionally bright bodies as Sirius, Venus, the moon (magnitude -12.71) or the sun (magnitude -26.8), the magnitude is expressed as a minus quantity.

## Proper Motion

That component of a star's motion in space which, at right angles to the line of sight, constitutes an apparent change of position of the star in the celestial sphere

The universe is the entirety of space, matter and antimatter. An appreciation of its magnitude is best grasped by working outward from the earth, through the solar system which is revolving around the center of the Milky Way galaxy, once in each 237,000,000 years at a speed of 492,000 mph and has a velocity of 44,700 mph relative to stars in our immediate region and then on to the remotest extra-galactic nebulae and quasars

## Meteor Shower

Meteoroids are mostly of cometary or asteroidal origin. A meteor is the light phenomenon caused by entry of a meteoroid into earth's atmosphere. The greatest meteor "shower" on record occurred on the night of Nov 16-17, 1966, when the Leonid meteors (which recur every 33¼ years) were visible between western North America and eastern USSR. It was calculated that meteors passed over Arizona at a rate of 2,300 per min for a period of 20 min from 5 a.m. Nov 17,

## Oldest and Largest Meteorites

The oldest dated meteorites are from the Allende Fall over Chihuahua, Mexico, Feb 8, 1969, dating back 4,610 million years.

It was reported in Aug 1978 that dust grains in the Murchison meteorite which fell in Australia in Sept 1969 predate the formation of the solar system 4,600 million years ago.

When a meteoroid penetrates to the earth's surface, the remnant, which could be either aerolite (stony) or siderite (metallic), is described as a meteorite. This occurs about 150 times per year over the whole land surface of the earth. Although the chances of being struck are deemed negligible, the most anxious time of day for meteorophobes is 3 p.m. In historic times, the only recorded person injured by a meteorite has been Mrs E. H. Hodges of Sylacauga, Alabama, on Nov 30, 1954, when a 9-lb stone went through her roof.

The largest known meteorite is one found in 1920 at Hoba West, near Grootfontein in southwest Africa. This is a block 9 ft long by 8 ft broad, weighing 132,000 lb.

The largest meteorite exhibited by any museum is the "Tent" meteorite, weighing 68,085 lb, found in 1897 near Cape York, on the west coast of Greenland, by the expedition of Commander (later Rear Admiral) Robert Edwin Peary (1856-1920). It was known to the Eskimos as the Abnighito and is now exhibited in the Hayden Planetarium in NYC.

The largest piece of stony meteorite recovered is a piece of 3,902 lb which was part of a shower that struck Jilin (formerly Kirin), China, March 8, 1976.

There was a mysterious explosion of  $12\frac{1}{2}$  megatons at Lat.  $60^{\circ} 55'$  N., Long.  $101^{\circ} 57'$  E., in the basin of the Podkamennaya Tunguska River, 40 miles north of Vanavar, in Siberia, USSR at 00 hrs 17 min 11 sec UT June 30, 1908. The cause was variously attributed to a meteorite (1927), a comet (1930), a nuclear explosion (1961) and to antimatter (1965). This devastated an area of about 1,500 sq mi, and the shock was felt more than 600 miles away.

The theory is now favored that this was the terminal flare of stony debris from a comet, possibly Encke's comet, at altitude of less than 20,000 ft. A similar event may have occurred over the Isle of Axeholm, Lincolnshire, Eng, a few thousand years before. A stony meteorite with a diameter of 6.2 miles striking the earth at 55,925 mph would generate an explosive energy equivalent to 100 million megatons. Such events should not be expected to recur more than once in 75 million years.

## Largest Craters

It has been estimated that some 2,000 asteroid-earth collisions have occurred in the last 600 million years. A total of 102 collision sites or astroblemes has been recognized. A crater 150 miles across and a half mile deep has been postulated in Wilkes Land, Antarctica, since 1962. It would have been caused by a 14,560 million-ton meteorite striking at 44,000 mph. In Dec 1970 USSR scientists reported an astrobleme in the basin of the Popigai River with a 60-mile diameter and a maximum depth of 1,300 ft. There is a possible crater-like formation or astrobleme 275 miles in diameter on the eastern shore of Hudson Bay, where the Nastapoka Islands are just off the coast.

The largest proven crater is the Coon Butte or Barringer Crater, discovered in 1891 near Canyon Diablo, Winslow, northern Ariz. It is 4,150 ft in diameter and now about 575 ft deep, with a parapet rising 130–155 ft above the surrounding plain. It has been estimated that an iron-nickel mass with a diameter of 200–260 ft, and weighing about 2,240,000 tons, gouged this crater c. 25,000 BC.

The New Quebec (formerly the Chubb) "Crater," first sighted June 20, 1943, in northern Ungava, Canada, is 1,325 ft deep and measures 6.8 miles around its rim.

## Fireball

The brightest fireball ever recorded photographically was one observed over Sumava, Czechoslovakia, Dec 4, 1974, by Dr Zdeněk Ceplecha, which had a momentary magnitude of  $-22$ , or 10,000 times brighter than a full moon.

## Tektites

The largest tektite of which details have been published was one of 7.04 lb found in 1932 at Muong Nong, Saravane Province, Laos, and now in the Paris Museum

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## THE MOON

The earth's closest neighbor in space and only natural satellite is the moon, at a mean distance of 238,855 statute miles center-to-center or 233,812 miles surface-to-surface. In the present century the closest approach (smallest perigee) was 216,398 miles surface-to-surface or 221,441 miles center-to-center on Jan 4, 1912, and the farthest distance (largest apogee) was 247,675 miles surface-to-surface or 252,718 miles center-to-center on Mar 2, 1984.

The moon was only a few earth radii distant during the "Gersenkorn period" 3,900 million years ago. It has a diameter of 2,159.3 miles and has a mass of  $7.35 \times 10^{19}$  metric tonnes with a mean density of 3.344. The average orbital speed is 2,287 mph.

The first direct hit on the moon was achieved at 2 min 24 sec after midnight (Moscow time) Sept 14, 1959, by the Soviet space probe *Lunik II* near the *Mare Serenitatis*. The first photographic images of the hidden side were collected by the USSR's *Lunik III* from 6:30 a.m. Oct 7, 1959, from a range of up to 43,750 miles, and transmitted to the earth from a distance of 292,000 miles.

## Highest Moon Mountains

As there is no sea level on the moon, the heights of lunar mountains can be measured only in relation to an adopted reference sphere with a radius of 1,079.943 miles. Thus the greatest elevation attained on this basis by any of the 12 US astronauts has been 25,688 ft, on the Descartes Highlands, by Capt John Watts Young, USN, and Major Charles M. Smith, USAF, Aug 23, 1969.

## Moon Samples

The age attributed to the oldest of the moon material brought back to earth by the *Apollo* program crews has been soil dated to 4,720 million years.

## Temperature Extremes on the Moon

When the sun is overhead, the temperature on the lunar equator reaches 243° F (31° F above the boiling point of water). By sunset the temperature is 58° F, but after nightfall it sinks to -261° F.

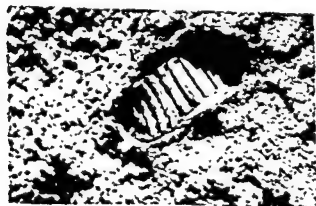
## Largest and Deepest Craters

Only 59% of the moon's surface is directly visible from the earth because it is in "captured rotation," *i.e.*, the period of rotation is equal to the period of orbit. The largest wholly visible crater is the walled plain Bailly, toward the moon's South Pole, which is 183 miles across, with walls rising to 14,000 ft. Partly on the averted side, the Orientale Basin measures more than 600 miles in diameter.

The deepest crater is the moon's Newton crater, with a floor estimated to be between 23,000 and 29,000 ft below its rim and 14,000 ft below the level of the plain outside. The brightest directly visible spot on the moon is *Aristarchus*.



**CRATERS ON THE FAR SIDE OF THE MOON:** Never seen on earth, the hidden side was first photographed by a Soviet space probe in 1959.



**FAMOUS FOOTSTEP:** The first step onto the moon left this print in the dust. Neil Armstrong, astronaut, had a quote prepared: "That's one small step for man, one giant leap for mankind." (NASA)





longest totality of any lunar eclipse is 104 min. This has occurred many times.

## Comets

The earliest records of comets date from the 7th century BC. The speeds of the estimated 2,000,000 comets vary from 700 mph in outer space to 1,250,000 mph when near the sun.

The successive appearances of Halley's Comet have been traced back to 467 BC. It was first depicted in the Nuremberg Chronicle of 684 AD. The first prediction of its return by Edmund Halley (1656-1742) proved true on Christmas Day, 1758, 16 years after his death.

The European satellite *Giotto* (launched July 2, 1985) penetrated to within 335 mi of the nucleus of Halley's Comet, Mar 13-14, 1986, to discover that it was 9.3 mi in length and velvet black in color.

## Closest Comet Approach to Earth

On July 1, 1770 Lexell's Comet, traveling at a speed of 23.9 miles per sec (relative to the sun), came within 745,000 miles of the earth. However, the earth is believed to have passed through the tail of Halley's Comet, most recently on May 19, 1910.

## Largest Comets

The tail of the Great Comet of 1843 trailed for 205 million miles. The bow shock of Holmes' Comet of 1892 once measured 1½ million mi in diameter.

## Shortest and Longest Comet Period

Of all the recorded periodic comets (these are members of the solar system), the one which most frequently returns is Encke's Comet, first identified in 1786. Its period of 1,206 days (3.3 years) is the shortest established. Not one of its 53 returns (to the end of 1983) has been missed by astronomers. Now increasingly faint, it is expected to "die" by Feb 1994. The most frequently observed comets are Schwassmann-Wachmann I, Kopff and Oterma, which can be observed every year between Mars and Jupiter.

At the other extreme is Delavan's Comet of 1914, whose path has not been accurately determined. It is not expected to return for perhaps 24 million years.

# PLANETS

The nine major planets (including the earth) are bodies within the solar system which revolve around the sun in definite orbits. The search for Planet X continues.

Eight SNC meteorites named after their find sites at Shergotty, India; Nakla, Egypt and Chassigny, France, are believed to have emanated from Mars.

## Nearest Planet to Earth

The fellow planet closest to the earth is Venus, which is, at times, only 25,700,000 miles inside the earth's orbit, compared with Mars' closest approach of 34,600,000 miles outside the earth's orbit. Mars, known since 1965 to be cratered, has temperatures ranging from 85°F to -190°F.

## Planet Features

By far the highest and most spectacular surface feature is Olympus Mons (formerly Nix Olympica) in the Tharsis region of Mars, with a diameter of 310-370 miles and a height of 75,450-95,150 ft above the surrounding plain. Venus has a canyon 4 mi deep and 250 mi long, 1,000 mi south of Venusian equator. The ice cliff on the Uranian moon Miranda is 65,000 ft high.

Viewed from earth, by far the brightest of the five planets visible to the naked eye is Venus, with a maximum magnitude of -4.4. The faintest is Pluto, with a magnitude of 15. Uranus at magnitude 5.5 is only marginally visible.



**LARGEST PLANET:** Jupiter, with an equatorial diameter of 88,846 miles and a volume 1,321.4 times that of the earth, is the largest planet in the solar system. Visible at the lower right is "Ganymede," the largest and heaviest satellite in the solar system. This photo was taken by "Voyager 1" on Jan 24, 1979, from more than 25 million miles away. (NASA)

Earth is the densest planet with an average figure of 5.515 times that of water, while Saturn has an average density only about one-eighth of this value or 0.687 times that of water.

The most dramatic recorded conjunction (coming together) of the seven principal members of the solar system besides the earth (sun, moon, Mercury, Venus, Mars, Jupiter and Saturn) occurred on Feb 5, 1962, when 16° covered all seven during an eclipse. It is possible that the seven-fold conjunction of Sept 1186 spanned only 12°. The next notable conjunction will take place May 5, 2000.

### Largest, Fastest and Hottest Planets

Jupiter, with an equatorial diameter of 88,846 miles and a polar diameter of 83,082 miles, is the largest of the major planets, with a mass 317.83 times and a volume 1,321.4 times that of the earth. It also has the shortest period of rotation, with a "day" of only 9 hours 50 min 30.003 sec in its equatorial zone.

Mercury, which orbits the sun at an average distance of 35,983,100 miles, has a period of revolution of 87.9686 days, so giving the highest average speed in orbit of 107,030 mph.

A surface temperature of 864°F has been estimated from measurements made from Venus by the USSR probes *Venera* and US *Pioneer* Cytherean surface probes.

### Smallest, Coldest and Outermost Planets

The smallest and coldest planets, Pluto and its partner Charon (announced on June 22, 1978), have an estimated surface temperature of -360°F (100°F above absolute zero). Their mean distance from the sun is 3,674,488,000 miles and their period of revolution is 248.54 years. Pluto's diameter is  $1365 \pm 87$  miles and Charon 720. Because of its orbital eccentricity, Pluto moved closer to the sun than Neptune between Jan 23, 1979 and March 15, 1999.

### Largest Asteroids

In the belt which lies between Mars and Jupiter, there are some 45,000 (3,700 numbered as of Apr 1987) minor planets or asteroids which are, for the most part, too small to yield to diameter measurement. The largest and first discovered (by G. Piazzi at Palermo, Sicily, Jan 1, 1801) of these is *Ceres*, with a diameter of 588 miles. The only one visible to the naked eye is asteroid 4 *Vesta* (diameter 318 miles), discovered March 29, 1807 by Dr Heinrich Wilhelm Olbers (1758-1840), a German amateur astronomer. The closest measured approach to the earth by an asteroid was 485,000 miles, in the case of *Hermes* on Oct 30, 1937 (asteroid now lost).

The most distant detected is 2060 *Chiron*, found between Saturn and Uranus Oct 18-19, 1977, by Charles Kowal from the Hale Observatory, Calif.

### Largest and Smallest Satellites

The largest and heaviest satellite is *Ganymede* (Jupiter III) which is 2.017 times heavier than our moon and has a diameter of 3,270 miles.

The smallest satellite is *Leda* (Jupiter XIII) with a diameter of 9.3 miles.

## Most Satellites

Of the nine major planets, all but Venus and Mercury have known natural satellites. The planet with the most is Saturn with at least 18 satellites. The earth and Pluto are the only planets with a single satellite. The distance of the solar system's known satellites from their parent planets varies from the 5,827 miles of *Phobos* from the center of Mars to the 14,700,000 miles of Jupiter's outer satellite *Sinope* (Jupiter IX). The solar system has a total of 63 established satellites.

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## STARS

### Largest and Most Massive Stars

The variable star *Eta Carinae* which is 9,100 light-years distant in the Carina Nebula of our own galaxy has a mass at least 200 times greater than our own sun.

*Betelgeux* (top left star of Orion) has a diameter of 400 million miles, or about 500 times greater than the sun. In 1978 it was found to be surrounded not only by a dust "shell" but also an outer tenuous gas halo up to  $5.3 \times 10^{11}$  mi in diameter that is over 1,100 times the diameter of the star. The light from *Betelgeux* which reaches the earth today left the star in 1680 AD.

### Smallest and Lightest Stars

A mass of 0.014 that of the sun is estimated for the very faint star CG 0058 + 2807 which was discovered by I. Neill Reid and Gerard Gilmore using the U.K. Schmidt telescope and was announced in April 1983. The white dwarf star L362-81 has an estimated diameter of 1,500 miles or only 0.0040 that of the sun.

### Nearest Stars

Excepting the special case of our own sun, the nearest star is the very faint *Proxima Centauri*, discovered in 1915, which is 4.22 light-years (24,800,000,000,000) mi away. The nearest "star" visible to the naked eye is the southern hemisphere binary *Alpha Centauri*, or *Pigel Kentaurus* (4.35 light-years distant), with an apparent magnitude of  $-0.29$ . It was discovered by Nicolas L. de Lacaille (1713-62) in 1752. In 29,700 AD this binary will reach a minimum distance of 0.84 light-years and will appear as the second brightest "star" with an apparent mag. of  $-1.20$ .

### Farthest Star

The solar system, with its sun's nine principal planets, 63 satellites, asteroids and comets, was estimated in 1982 to be 28,000 light-years from the center of the lens-shaped Milky Way galaxy (diameter 100,000 light-years) so that the most distant stars in our galaxy are estimated to be 63,000 light-years distant.

### Brightest Star

Sirius A (*Alpha Canis Majoris*), also known as the Dog Star, is

apparently the brightest star of the 5,776 stars visible in the heavens, with an apparent magnitude of  $-1.46$ . It is in the constellation *Canis Major* and is visible in the winter months of the northern hemisphere, being due south at midnight on the last day of the year. The Sirius system is 8.64 light-years distant and has a luminosity 26 times as much as that of the sun. It has a diameter of 1,450,000 miles and a mass of  $4.20 \times 10^{27}$  metric tons. The faint white dwarf companion star Sirius B has a diameter of only 6,000 miles but is 350,000 times heavier than the earth. Sirius will reach a maximum magnitude of  $-1.67$  in c. 61,000 AD.

## Most and Least Luminous Stars

If all the stars could be viewed at the same distance the most luminous would be *Eta Carinae* (see *Most Massive Star*) which now has a total luminosity 6,500,000 times greater than that of the sun, but at its peak brightness in 1843 was at least 10 times more luminous than this. The visually brightest star is the hypergiant *Cygnus* OB2 No. 12, which is 5,900 light-years distant from our own galaxy and which has an absolute visual magnitude of  $-9.9$  and is therefore visually 810,000 times brighter than our sun. This brightness may be matched by the supergiant IV b 59 in the nearby galaxy Messier 101, but this depends on the distance adopted for this galaxy (estimates vary between 15,600,000 and 19,700,000 light-years). The variable  $\eta$  *Carinae* in c. 1840 had an absolute luminosity 4 million times that of the sun. The faintest star detected is the recently discovered RG 0058.8-2807 (see *Lightest Star*) which has a total luminosity only 0.00021 that of the sun and an absolute visual magnitude of 20.2, so that the visual brightness is less than one millionth that of the sun.

## Longest Name

The longest name for any star is *Shurnarkabtishashutu*, the Arabic for "under the southern horn of the bull."

## Brightest and Latest Super-Nova

The brightest star seen by man is believed to be the super-nova SN 1006 in Apr 1006 near *Beta Lupi* which flared for 2 years and attained a magnitude of  $-9$  to  $-10$ . The remnant is believed to be the radio source G.327.6 + 14.5, nearly 3,000 light-years distant.

## Black Holes

This term for a star that has undergone complete gravitational collapse was first used by Prof John Archibald Wheeler at an Institute for Space Studies meeting in NYC on Dec 29, 1967.

The first tentative identification of a Black Hole was announced in Dec 1972 in the binary-star X-ray source *Cygnus* X-1. The best candidate is LMC X-3 of 10 solar masses, 180,000 light-years distant, reported in Jan 1983. The critical size has been estimated to be as low as a diameter of 3.67 miles. One at the center of the Seyfert galaxy, NGC 4151 in *Canes Venatici*, was estimated by Michael Preston (GB) in Oct 1983 to be of between 50-100 million solar masses.



## THE UNIVERSE

Outside the Milky Way galaxy, which is part of the so-called Local Group of galaxies moving at a speed of 1,400,000 mph relative to the microwave background radiation in a direction offset  $44^\circ$  from the center of the Virgo cluster, there exist 10,000 million other galaxies.

The largest discrete object in the universe is a filamentary arrangement of Abell clusters stretching across the South Galactic Cap and measuring 1,000 million light-years,  $5.88 \times 10^{21}$  mi in length, announced by Jack O. Burns and David Batuski of the Univ of NM, Albuquerque, in May 1984 measuring 730 million light-years.

### Farthest Visible Object

The most remote heavenly body visible to the naked eye is the Great Galaxy in *Andromeda* (Mag. 3.47) known as Messier 31. This is a rotating nebula of spiral form, its distance from the earth about 2,150,000 light-years, or about 12,600,000,000,000,000 miles, and it is moving toward us.

It is just possible, however, that, under ideal seeing conditions, Messier 33, the Spiral in Triangulum (Mag. 5.79), can be glimpsed by the naked eye of keen-sighted people at a distance of 2,360,000 light-years.

### Quasars

An occultation of 3C-273, observed from Australia on Aug 5, 1962, enabled the existence of quasi-stellar radio sources ("quasars" or QSO's) to be announced by Maarten Schmidt (b Netherlands 1929). The red shift proved to be  $z = 0.158$ . Quasars have immensely high luminosity for bodies so distant and of such small diameter. In May 1983, it was announced that the quasar S5 0014+21 had a luminosity  $1.1 \times 10^{15}$  times greater than that of the sun. The first double quasar (0957 + 56) among the 1,500 known quasars was announced in May 1980.

### Pulsars

The earliest observation of a pulsating radio source of "pulsar" CP 1919 (now PSR 1919 + 21) by Dr Jocelyn Bell Burnell was announced from the Mullard Radio Astronomy Observatory, Cambridge, England, on Feb 24, 1968. It had been detected on Nov 28, 1967.

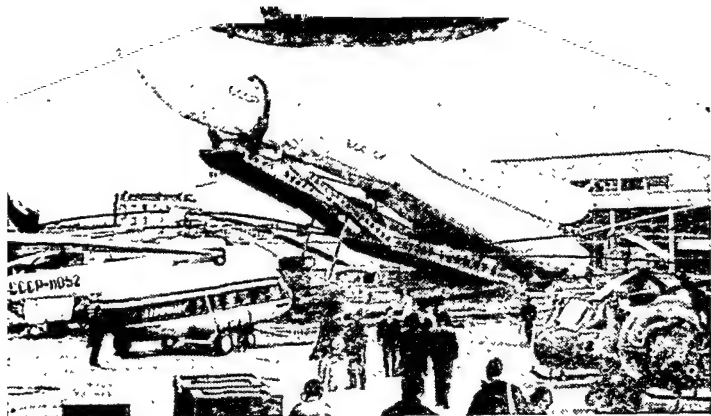
The fastest spinning is pulsar 1937 + 214 which is in the region of the minor constellation *Vulpecula* (the Fox), 16,000 light-years distant. It has a pulse period of 1.557806449 milli-sec and a spindown rate of  $1.0511 \times 10^{-19}$  sec/sec. However, the most accurate stellar clock is the pulsar, PSR 1955+09, which has a spindown rate of only  $2.1 \times 10^{-20}$  sec/sec.

### Remotest Object

Both the interpretation of very large red shifts exhibited by quasars and the estimation of equivalent distances remain controversial. The record red shift of  $z = 4.01$  for quasar 0046-293 was announced by







**FIRST MANNED SPACE FLIGHT:** On Apr 12, 1961, a new era began when the Russians sent up a space capsule like this, "Vostok," from an SL3 launcher ramp like this. Yuriy Gagarin was at the helm. It completed a single orbit of the earth in 108 min at a speed of 17,560 mph. (This photo by K. J. A. Brookes was taken from the cargo hold of an Antonov AN 22)

## Closest Approach to the Sun by a Rocket

The research spacecraft *Helios B* approached within 27 million miles of the sun on Apr 16, 1976. It was carrying both US and West German instrumentation.

## First Artificial Satellite

The first artificial satellite was successfully put into orbit at an altitude of 142/588 miles and a velocity of more than 17,750 mph from Tyuratam, a site located 170 miles east of the Aral Sea, on the night of Oct 4, 1957. This spherical satellite, *Sputnik 1* ("Fellow Traveler") officially designated "Satellite 1957 Alpha 2," weighed 184.3 lb, with a diameter of 22.8 in, and its lifetime is believed to have been 92 days, ending on Jan 4, 1958. It was designed under the direction of former Gulag prisoner, Dr Sergey Pavlovich Korolyov (1907-66).

The physical laws controlling the flight of artificial satellites were first propounded by Sir Isaac Newton (1642-1727) in his *Philosophiae Naturalis Principia Mathematica* ('Mathematical Principles of Natural Philosophy'), begun in March 1686 and first published in the summer of 1687.

## Earliest Successful Manned Satellites

The first successful manned space flight began at 9:07 a.m. (Moscow time), or 6:07 a.m. G.M.T., Apr 12, 1961. Flight Major (later Colonel) Yuriy Alekseyevich Gagarin (1934-68) completed a single orbit of the earth in 108 min in the USSR's space vehicle *Vostok* ("East") 1 (10,416 lb). The maximum speed was 17,560 mph and the maximum altitude 203.2 miles in a flight of 25,394.5 miles.

The explosion of the *Challenger* *SIL* space shuttle on Jan 28, 1986, the worst human disaster in space history, when 7 were killed, has caused NASA to delay further manned space exploration. The number killed in launcher explosions in the USSR has never been revealed.

### Remotest Man-Made Object

*Pioneer 10* launched from Kennedy Space Center, Cape Canaveral, Fla, crossed the mean orbit of Pluto on Oct 17, 1986, being then at a distance of 3,670 million mi. It will be beyond the furthest extension of Pluto's orbit by April 1989 and will continue into space at 30,450 mph. In 34,593 AD it will make its nearest approach to the *Star Ross* 248,103 light-years distant. Before 1991, *Voyager 1*, travelling faster, will surpass *Pioneer 10* in remoteness from the earth.

If an alien body should encounter *Pioneer 10*, it will find a map on board giving earth's location in relation to 14 radio beacon stars and an engraving of two earthlings, one male, one female. *Pioneer 10* in 5 billion years, if not intercepted, may cross the rim of our galaxy. By that time, however, both sun and earth will no doubt be dead!

### Heaviest and Largest Space Object

The heaviest object orbited is the Saturn V third stage with *Apollo 15* (spacecraft) which, prior to trans-lunar injection in parking orbit weighed 138.29 tons. The 442-lb US RAE (Radio Astronomy Explorer) B or *Explorer 49* launched on June 10, 1973 had, however, antennae 1,500 ft from tip to tip.

### Most Expensive Project

The total cost of the US manned space program up to and including the lunar mission of *Apollo 17* has been estimated to be \$25,541,400,000. The first 15 years of the USSR space programme from 1958 to Sept 1973 has been estimated to have cost \$45,000 million. The cost of the NASA Shuttle program was \$9.9 billion to the launch of *Columbia* on Apr 12, 1981.

### First Extra-Terrestrial Vehicle

The first wheeled vehicle landed on the moon was *Lunakhod 1* which began its earth-controlled travels on Nov 17, 1970. It moved a total of 6.54 miles on gradients up to 30° in the Mare Imbrium and did not become non-functioning until Oct 4, 1971.

## **onauts**

### **Earliest**

Col Yuriy Gagarin  
(b Mar 9, 1934) (USSR)  
*Vostok 1* Apr 12, 1961

### **First Woman**

Lt-Col Valentina  
Tereshkova  
(USSR) (48 orbits)  
(b Mar 6 1937)  
*Vostok 6* June 16, 1963

### **First Space Walk**

Lt-Col Aleksey A. Leonov  
(b May 30, 1934) (USSR)  
*Voskhod 2* Mar 18, 1965

### **First Undisputed Fatality**

Col Vladimir Komarov  
(b Mar 16, 1927) (USSR)  
*Soyuz 1* Apr 23, 1967

### **First on Moon**

Neil A. Armstrong  
(b Aug 5, 1930) (US)  
*Apollo XI* July 21, 1969

### **Longest on Moon**

Lt Eugene A. Cernan (USN)  
(b Mar 14, 1934) (US)  
Dr Harrison H. Schmitt  
(b July 3, 1935) (US)  
74 hours 59½ min  
*Apollo 17* Dec 7-19, 1972

### **Youngest**

Col Gherman S. Titov (USSR)  
(25 yrs 329 days)  
*Vostok 2* Aug 6, 1961

### **Oldest**

Karl G. Henize (US)  
(58 years)  
19th Space Shuttle July 29,  
1985

### **First Untethered "Float" in Space**

(wearing a Manned  
Maneuvering Unit)  
*Man:* Capt Bruce McCandless  
(USN) (b 1938)  
*Challenger* Feb 7, 1984

*Woman:* Dr Kathryn Sullivan  
(b 1952) (US)  
*Challenger* Oct 11, 1984

### **First Feminine Space Walk**

Mme Svetlana  
Savitskaya-Khatkovsky  
*Salyut 7* (USSR) July 25, 1984

### **Longest Manned Flight**

236 days 22 hr 50 min  
Dr Oleg Y. Atkov, 35;  
Leonid D. Kizim, 43, and  
Vladimir A. Solovyev, 38  
(USSR) 98.1 million miles  
*Soyuz T-10* Feb 8-Oct 20, 1984  
Valeriy Ryumin (USSR)  
3 flights aggregating 362 days

### **Most Journeys**

Capt John Watts Young  
(USN) (b 1930)  
6 space flights to Dec 8, 1983  
Total 34 days  
19 hours 42 min 13 sec



graviton, photon, and neutrino should all be zero. Based on the sensitivities of various cosmological theories, upper limits for the masses of these particles are  $7.6 \times 10^{-67}$  g for the graviton;  $3.0 \times 10^{-53}$  g for the photon and  $1.4 \times 10^{-32}$  g for the neutrino (cf.  $9.10939 \times 10^{-28}$  g for the mass of an electron).

### Most Absorbent Substance

The US Dept of Agriculture Research Service announced on Aug 18, 1974 that "H-span" or Super Slurper, composed of one half starch derivative and one fourth each of acrylamide and acrylic acid, can, when treated with iron, retain water 1,300 times its own weight.

### Most Powerful Nerve Gas

VX, 300 times more toxic than phosgene ( $\text{COCl}_2$ ) used in World War I, was developed at the Chemical Defence Experimental Establishment, Porton Down, Wiltshire, England in 1952. Patents applied for in 1962 and published in Feb 1974, show it to be Ethyl S-2-diisopropylaminoethylphosphonothiolate. The lethal dosage is 10 mg-minute/m<sup>3</sup> airborne or 0.3 mg orally.

### Smelliest Substance

The most evil-smelling substance, of the 17,000 smells so far classified, must be a matter of opinion, but ethyl mercaptan ( $\text{C}_2\text{H}_5\text{SH}$ ) and butyl seleno-mercaptan ( $\text{C}_4\text{H}_9\text{SeH}$ ) are powerful claimants, each with a smell reminiscent of a combination of rotting cabbage, garlic, onions and sewer gas.

### Most Expensive Perfume

The retail prices of the most expensive perfumes tend to be fixed with an eye to public relations rather than levels solely dictated by the cost of ingredients and packaging. The Chicago-based firm Jövan marketed from Mar 1984 a cologne called Andron which contains a trace of the attractant pheromone androstenol which has a cost of \$2,750 per oz.

### Perfume Shower

Some 198 gallons of jasmine essence perfume were sprayed over 140,000 people who attended a local carnival in Rio de Janeiro, Brazil, on Feb 9, 1986, as arranged by Carlos Norberto Varaldo of Chiero da Terra Perfumes.

### Most Potent Poison

The rickettsial disease, Q-fever, can be instituted by a single organism but is only fatal in 1 in 1,000 cases. About 10 organisms of *Francisella tularensis* (formerly known as *Pasteurella tularensis*) can institute tularemia, variously called alkali disease, Francis disease or deerfly fever, and this is fatal in upwards of 10 cases in 1,000.

The most lethal man-made chemical is TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin) utilized in herbicides, discovered in 1872. It is said to be 150,000 times more deadly than cyanide at  $1 \times 10^{-9}$  moles/kg.



## Greatest Wine Auction and Tasting

The largest single sale of wine was conducted by Christie's of London, July 10-11, 1974 at Quaglino's Ballroom when 2,325 lots containing 432,000 bottles realized £962,190 (then \$2,309,256).

The largest wine-tasting ever reported was that staged by the Wine Institute at St Francis Hotel, San Francisco, on July 17, 1980 with 125 pourers, 90 openers and a consumption of 3,000 bottles.

## Strongest and Weakest Beer

The most alcoholic beer is Samichlaus Bier brewed by Brauerai Hürlimann of Zurich, Switzerland. It is 13.94% alcohol by volume at 20° C with an original gravity of 1107.6°. The strongest beer as measured by original gravity is the German EKU Kulminatur Urtyp Hell 28 with 1131.7° and 13.52% alcohol by volume at 20° C.

The weakest liquid ever marketed as beer was a sweet ersatz beer which was brewed in Germany by Sunner, Colne-Kalk, in 1918. It had an original gravity of 1000.96°, with less than 0.2% alcohol.

## Largest and Smallest Bottles

The largest bottles normally used in the wine and spirit trade are the Jeroboam (equal to 4 bottles of champagne or, rarely, of brandy, and from 5 to 6½ bottles of claret, depending on whether the bottle was blown or molded) and the double magnum (equal, since c. 1934, to 4 bottles of claret or, more rarely, red burgundy). A complete set of champagne bottles would consist of the ¼ bottle, ½ bottle, bottle, magnum, Jeroboam, Rehoboam, Methuselah, Salmanazer, Balthazar and the Nebuchadnezzar, which has a capacity of 16 liters (33.8 pints), and is equivalent to 20 bottles.

In May 1958 a 5-ft-tall sherry bottle with a capacity of 20½ Imperial gallons (24.6 US gallons) was blown in Stoke-on-Trent, Staffordshire, England. This bottle, with the capacity of 131 normal bottles, was named an "Adelaide."

The smallest bottles of liquor now sold are White Horse bottles of Scotch whisky containing 1.3 milliliters (about 4/100ths of an ounce) for about 50 cents per bottle in "cases" of 12.

## Champagne Cork Flight

The longest distance for a champagne cork to fly from an untreated and unheated bottle 4 ft from level ground is 105 ft 9 in achieved by Peter Kirby at Idlewild Park, Reno, Nev, July 4, 1981.

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## PHOTOGRAPHY

### Earliest Cameras

The earliest veiled reference to a photograph on glass taken in a camera was in a letter from Joseph Nicéphore Niepce (1765-1833), a French physician and scientist, dated July 19, 1822. It was a photograph of a copper engraving of Pope Pius VII taken at Gras, near Chalon-sur-Saône.







**NEW SMALLEST CAMERA:**  
The "Santokh," invented by the husband-and-wife team of Joginder Singh Sidhu, of which 10 are in existence is just about half the size of the human eye. It measures 14mm (0.55 in) in length 9mm (.35 in) in width and height, and has a focal length of 4mm (0.157 in). It weighs 2.5 grams (0.08 oz) and produces a negative 3mm x 4mm.

### Fastest Camera

A camera built for research into high-power lasers by the Blackett Laboratory of Imperial College of Science and Technology, London, registers images at the rate of 33,000 million per sec.

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## TELESCOPES

### Earliest Telescope

Although there is evidence that early Arabian scientists understood something of the magnifying power of lenses, the first known use of lenses to form a telescope has been attributed to Roger Bacon (c.1214-92) in England. The prototype of modern refracting tele-

scopes was completed by Johannes Lippershey for the Netherlands government on Oct 2, 1608.

## Largest Reflector

The largest telescope is the alt-azimuth mounted, 236.2-inch telescope sited on Mt Semirodriki, near Zelenchukskaya in the Caucasus Mts, USSR, at an altitude of 6,830 ft. Work on the mirror, weighing 78 tons, was not completed until the summer of 1974. Regular observations were begun on Feb 7, 1976, after 16 years' work. The weight of the 138-ft-high assembly is 946 tons. Being the most powerful of all telescopes, its range, which includes the location of objects down to the 25th magnitude, represents the limits of the observable universe. Its light-gathering power would enable it to detect the light from a candle at a distance of 15,000 miles.

Work started on Sept 15, 1985, on the \$70 million Keck 393.7-in reflector comprising 36 independently controlled fitting hexagonal mirrors for Caltech and the Univ of California. It is sited on Mt Mauna Kea, Hawaii and due to be completed by 1989.

*Note:* The attachment of an electronic charge-coupled-device (CCD) increases the "light-grasp" of a telescope by a factor up to 100 fold. Thus a 200-in telescope achieves the light-gathering capacity of a 1,000-in telescope.

## Largest Refractor

The largest refracting (i.e. magnification by lenses) telescope in the world is the 62-ft-long, 40-in telescope completed in 1897 at the Yerkes Observatory, Williams Bay, Wis, belonging to the University of Chicago. In 1900, a 49.2-in refractor 180 ft in length was built for the Paris Exposition, but its optical performance was too poor to justify attempts to use it.

## Oldest and Highest Observatories

The oldest astronomical observatory building extant is the "Tower of the Winds" used by Andronichus of Cyrrhos in Athens, Greece, c. 70 bc. It is equipped with sundials and a water clock.

The highest-altitude observatory in the world is the University of Denver's High Altitude Observatory at an altitude of 14,100 ft, opened in 1973, on Mt Evans, Colo. The principal instrument is a 24-in Ealing Beck reflecting telescope

## Largest Radio Telescope

The largest radio-telescope installation is the US National Science Foundation VLA (Very Large Array). It is Y-shaped with each arm 13 miles long with 27 mobile antennae (each 82 ft in diameter) on rails. It is 50 miles west of Socorro in the Plains of San Augustin, NM and was dedicated on Oct 10, 1980 at a cost of \$78 million.

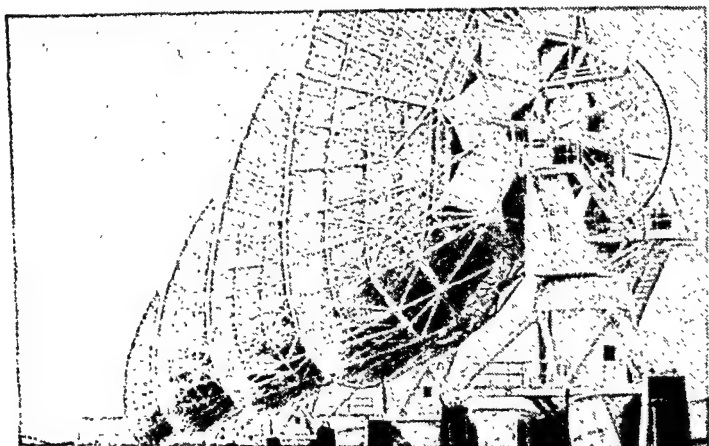
A computer-linked very long base-line array of 82-ft radio telescopes stretched over 2,600 miles on Lat 49.3°N has been planned by the Canadian Astronomical Society.

## Largest Dish Telescopes

Radio waves of extraterrestrial origin were first detected by Karl

Jansky of Bell Telephone Laboratories, Holmdel, NJ, using a 100-ft-long shortwave rotatable antenna in 1932. The largest trainable dish-type radio telescope is the 328-ft-diameter, 3,360-ton assembly at the Max Planck Institute for Radio Astronomy of Bonn in the Effelsberger Valley, W Germany; it became operative in May 1971. The cost of the installation, begun in Nov 1967, was DM36,920,000 (\$14,760,000).

The world's largest dish-type radio telescope is the partially-steerable ionospheric assembly built over a natural bowl at Arecibo, Puerto Rico, completed in Nov 1963 at a cost of about \$9 million. It has a diameter of 1,000 ft and the dish covers 18½ acres. Its sensitivity was raised by a factor of 1,000 and its range to the edge of the observable universe at some 15,000 million light-years by the fitting of new aluminum plates at a cost of \$8,800,000. Rededication was on Nov 16, 1974.



VLA stands for Very Large Array. This installation near Socorro, NM, is the world's largest radio telescope. It has 27 mobile railed antennae and each arm is 13 miles long.

## Space Telescope

The first space observatory was the US Orbiting Solar observatory 0504 launched on Oct 18, 1967. The largest will be the \$1.2 billion NASA Space Telescope of 12.32 tons and 43 ft in overall length with a 94.5 inch reflector eventually to be placed in orbit at c 300 mi altitude aboard a US Space Shuttle.

## Planetaria

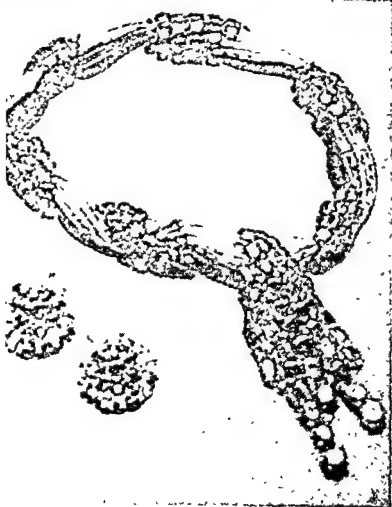
The ancestor of the planetarium is the rotatable Gottorp Globe, built by Andreas Busch in Denmark between 1654 and 1664 to the orders of Olearius, court mathematician to Duke Frederick III of Holstein. It is 34.6 ft in circumference, weighs 4 tons and is now preserved in Leningrad, USSR. The stars were painted on the inside.



**\$2,126,646 EMERALD IN DIAMOND RING** (far left): This belonged to the late Duchess of Windsor and was sold in the Apr 1987 auction at Sotheby's Geneva. Next to it is the world record **RED DIAMOND** (enlarged in the top photo), less than a carat (0.95), which sold at a price of \$926,000 per carat, the highest price for any gem sold at auction. (Christie's NYC)



**\$2,603,308 for a pair of CANARY YELLOW DIAMOND LAPEL CLIPS** (above) by Harry Winston—from the Duchess of Windsor's jewelry collection sold at Sotheby's, Geneva, Apr 1987. In this lot were earclips (below) that sold for less than record amounts



**\$2,603,308 RUBY AND DIAMOND NECKLACE** This record piece was auctioned in the sale of the Duchess of Windsor collection at Sotheby's Geneva, Apr 1987.

The earliest optical installation was not until 1923 in the Deutsches Museum, Munich, by Zeiss of Jena, Germany.

The world's largest planetarium, with a diameter of 82½ ft, is in Moscow.

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## GEMS

### Rarest and Commonest Minerals

The rarest mineral cannot be certainly established. The total known amount of scotlandite ( $\text{PbSO}_3$ ) comprises only a few tens of milligrams. Though probably found in the 19th century in Leadhills, Strathclyde, Scotland this first naturally occurring yellowish sulphite was only certainly identified in 1978 by Dr R. S. W. Braithwaite. The world's commonest mineral is silicate of calcium, iron magnesium and manganese collectively known as olivine.

### Hardest Gems

The hardest of all gems, and hardest known naturally occurring substance, is diamond, which is, chemically, pure carbon. Diamond has 5 times the indentation hardness of the next hardest mineral, corundum ( $\text{Al}_2\text{O}_3$ ). Hardnesses are compared on Mohs' scale, on which talc is 1, a fingernail is 2½, window glass 5, topaz 8, corundum 9, and diamond 10.

### Most Valuable Emerald

The highest price paid at auction (Apr 2, 1987 at Sotheby's, Geneva, Switzerland) for an emerald is \$2,126,646 for a rectangular step-cut emerald with cut corners weighing 19.77 carats. It was mounted in 1936 by Cartier, London, as an engagement ring of (then King) Edward VIII for his bride, Wallis Warfield Simpson (later, the Duchess of Windsor), within a stylized leaf border set with brilliant-cut diamonds. The stone itself, valued at the highest per-carat rate for an emerald, was remounted in its present setting by Cartier, Paris, in 1958.

### Biggest Find

A 1,905-carat uncut star sapphire was found in a display of cheap stones in Nov 1986 in a Tucson, Ariz show by Roy Whetstine, a Kilgore, Texas dealer, who paid \$10 for the stone that is worth \$2½ million.

### Most Precious Diamond

An extremely rare unmounted, circular-cut fancy purplish-red diamond of 0.95 carats sold for \$880,000, at Christie's, NYC, on Apr 28, 1987, establishing a record of \$926,000 per carat. The price was more than seven times the former record of \$127,000 per carat, set at Christie's, Geneva, in 1980 by a pink diamond of 7.27 cts. The diamond has a diameter of approximately 6½ millimeters, the size of a small pea.

## PRECIOUS STONE RECORDS

The carat was standardized at 205 mg (0.007054 oz) in 1877. The metric carat of 200 mg was introduced in 1914.

### Largest

Diamond (pure crystallized carbon)  
3,106 metric carats (over 1½ lb) — *The Cullinan*, found by Mr Gray, Jan 25, 1905, in the Premier Mine, Pretoria, South Africa. Named after mine's discoverer Sir Thomas Cullinan. Presented to King Edward VII in 1907.

The first synthetic diamonds were produced by Prof H. T. Hall at the General Electric Research Laboratories, on Dec 16, 1954. In Feb 1984 a Tass report from Leningrad, USSR, announced that the Institute of High Frequency Currents had produced an artificial diamond weighing 4½ lb.

### Largest Cut Stone

530.2 metric carats. 74 facets, pear-shaped. Cleaved from *The Cullinan* in 1908 in Amsterdam by Jak Asscher and polished by Henri Koe. Known as *The Star of Africa No 1* and now in the British Royal Sceptre. *The Cullinan II* is 317.40 carats. Third on the list of the 55 diamonds of more than 100 carats is the Great Mogul of 280 old carats lost in the sack of Delhi in 1739 and arguably the most valuable object ever lost.

In Nov 1984 the Zale Corporation of NYC announced that it may be feasible to cut their pale yellow 890-carat uncut stone from Africa into the world's largest cut stone, one of 550-600 carats.

Emerald (green beryl)  
[Be<sub>3</sub>Al<sub>2</sub>(SiO<sub>3</sub>)<sub>6</sub>]

86,136-carat natural beryl Gleim emerald. Found in Carnaúba, Brazil, Aug 1974. Carved by Richard Chan (Hong

### Other Records

Diamond is the hardest-known naturally occurring substance, with 5 times the indentation hardness of the next hardest mineral, corundum. The peak hardness on the Knoop scale is 8,400 compared with an average diamond of 7,000. The rarest color for diamond is blood red. The largest example is a flawless 5.05-carat stone found in 1927 in Lichtenberg, South Africa now in a private collection in the US. The world record price per carat was set at \$926,000 when a red diamond was sold at Christie's, NYC, Apr 28, 1987.

The 42.92-carat Terestchenko blue diamond was auctioned at Christie's, Geneva, Switz, Nov 14, 1984 for \$4,580,000. The largest blue diamond is the 45.85-carat Copenhagen Blue.

The Argyle field of W Australia yielded 6.2 million carats in 1983 and 5.7 million in 1984, and is now the most prolific in the world.

An 18.35-carat ring was sold for \$520,000 at Sotheby Parke Bernet, NYC, in Apr 1977.

Sapphire (corundum, any color but red) ( $\text{Al}_2\text{O}_3$ ) 2,302-carat stone found at Anakie, Queensland, Australia, in c. 1935, now a 1,318-carat head of President Abraham Lincoln (1809-65)

1,905-carat star bought for \$10 by Texas dealer, worth \$2½ million.

Ruby (red corundum)

( $\text{Al}_2\text{O}_3$ )

8,500-carat semi-transparent to opaque natural ruby exhibited in Smithsonian, now cut in shape of Liberty Bell, 5½ in tall, exhibited in jeweler Kazanjian's window, Beverly Hills, Calif.

Largest star ruby is 2,457-carat Rajarathna, India, animated star of 6 lines, cut as a cabochon. Largest double star is 1,370-carat Neelanjahl cabochon cut stone displaying 12 star lines, 3 in high, 2 in diameter. Owned by G. Vidyaraj of Bangalore, India.

Since 1955 rubies have been the world's most precious gem attaining a world record carat price of \$100,639 for a ruby at Christie's sale in Geneva in Nov 1979 in the case of a 4.12-carat caspian-shaped ruby.

The ability to make corundum prisms for laser technology up to over 12 in in length seems to have little bearing on the market for natural gems.

## RECORDS FOR OTHER PRECIOUS MATERIALS

*Largest*

Pearl (Molluscan concretion) 14 lb 1 oz 9½ in long × 5½ in in diameter—*Pearl of Lao-tze*

*Where Found*

At Palawan, Philippines, May 7, 1934, in shell of giant clam

*Notes on Present Location, etc.*

The property of Wilburn Dowell Cobb, from 1936 until his death, valued at \$4,080,000 in July 1971, sold on May 15, 1980 at auction in San Francisco by his estate for \$200,000 to Peter Hoffmann, jeweler of Beverly Hills, Calif. In May 1982, an appraisal for the owners (Hoffmann and Victor Barbish) by the San Francisco Gem Laboratory suggested a value of \$32,640,000.

Black Pearl 0.71 in diameter

Namarai Bay, Fiji Islands

Opal ( $\text{SiO}_2$ ,  $\text{NH}_4\text{O}$ ) 220 troy oz (yellow orange)

Cooper Pedy, Australia

Found by Yasuhiro Tokito on Jan 26, 1984.

The Olympic Australis (17,700 carats), found in Aug 1956, owned by Altmann & Cherny Pty Ltd is on public display in Melbourne and is (continued)

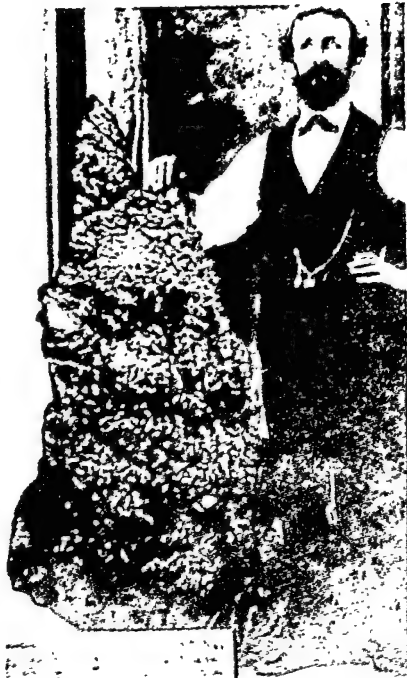


million (US). An opal containing much pouch  
 at) named the Desert Flame was found at Andamooka,  
 The 34.215-carat mass first reported in Sept 1969 was  
 auctioned off on Aug 29, 1978.

Rock Crystal (Quartz) (SiO <sub>2</sub> ) Ball. 106 3/4 lb 12 3/8 in in diameter, the Warner sphere	Burma (originally a 1,000-lb piece)	US National Museum, Washington, DC.	
Topaz Al <sub>2</sub> SiO <sub>4</sub> (F, OH) <sub>2</sub> Brazilian Princess 21,327 carats, 221 facets (light blue)	Light blue, from Brazil	Amer Museum of Natural History, NYC, from Dec 10, 1985. Valued at \$1,066,350 or \$50 per carat Cut from a 75-lb crystal. World's largest faceted stone	
Amber (coniferous fossil resin) 33 lb 10 oz	Reputedly from Burma, acquired in 1860	Bought by John Charles Bowring (d 1893) for £300 in Canton, China, Natural History Museum, London, since 1940	
Nephrite Jade Ca <sub>2</sub> (MgFe) <sub>2</sub> (Si <sub>4</sub> O <sub>11</sub> ) <sub>2</sub> (OH) <sub>2</sub> Boulder of 143 tons (315,315 lb), 21,300 cu ft	Reported in China, Sept 17, 1978	Jadite can be virtually any color except red or blue The largest-known example is a block from Burma weighing 36 9/6 tons	
Marble (Metamorphosed CaCO <sub>3</sub> ) 100 8 tons (single slab)	Quarried at Yule, Colo	A piece of over 50 tons was dressed from this slab for the coping stone of the Tomb of the Unknown Soldier in Arlington National Cemetery, Va	
Nuggets—Gold (Au) 7,560 oz (472 1/2 lb) (reef gold) Holtermann Nugget	Beyers & Holtermann Star of Hope Gold Mining Co, Hill End, NSW, Australia Oct 19, 1872	The purest large nugget was the Holtermann nugget, found at Moliagul, Victoria, Australia, which yielded 220 lb of pure gold from a 630-lb slab of slate. The largest nugget was the <i>Welcome Stranger</i> , found at Moliagul, Victoria, Australia in 1869, which yielded 2,248 troy oz of pure gold from 2,280 1/4 oz.	
Silver (Ag) 2,750 lb troy	Sonora, Mexico	Appropriated by the Spanish Government before 1821.	



**\$1,292,000 EMERALD:** ▲  
found in Brazil in this form  
in 1974, it was, after carving,  
said to be worth this much.



**LARGEST GOLD NUGGET:** ▲  
This 630-lb slab of slate yielded  
220 lb of pure gold. Holtermann  
found it in Australia in 1872.



**LARGEST FACETED STONE:**  
The light blue topaz called the  
"Brazilian Princess," weighing  
21,327 carats, has 221 facets and  
was cut from a 75-lb crystal.  
Now in NYC's American  
Museum of Natural History, it is  
valued at about \$50 per carat—  
total \$1,066,350.

**LARGEST AMBER:**  
This 33-lb-10-oz  
"Burma Amber" is  
a hunk of a fossil  
resin from extinct  
coniferous trees.  
(National History  
Museum, London)





## Smallest Brilliant Cut Diamond

A diamond weighing 0.00063 of a carat, 0.02 in in size, is owned by Gebroedeus van den Wouwer of Antwerp, Belgium.

## Largest Crystals

An 187-ton beryl ( $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$ ) measuring 59 ft long and  $11\frac{1}{2}$  ft in diameter was recorded at Malakialina, Malagasy Republic (formerly Madagascar) in 1976.

A 520,000-carat (229-lb) aquamarine [ $\text{Be}_3\text{Al}_2(\text{SiO}_3)_6$ ], found near Marambaia, Brazil in 1910, yielded over 200,000 carats of gem-quality cut stones.

## Densest Gem Mineral

The densest of all gem minerals is stibiotantalite [ $(\text{SbO})_2(\text{Ta},\text{Nb})_2\text{O}_6$ ], a rare brownish-yellow mineral found in San Diego County, Calif with a density of 7.46 grams per cc. The alloy platinumiridium has a density of more than 22.0.

## Newest Gemstones

Tanzanite was discovered in Tanzania in 1969. It reached \$1,200 per carat in 1977. The deep purple Royal Lavalite found in Hotazel, South Africa by Randy Polk of Phoenix, Ariz reached \$1,300 per carat in 1982.

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## NUMERALS

In dealing with large numbers, scientists use the notation of 10 raised to various powers, to eliminate a profusion of zeros. Example: 19,160,000,000,000 miles would be written  $1.916 \times 10^{13}$  miles. A very small number is treated similarly—for example, 0.0000154324 of a gram, would be written  $1.54324 \times 10^{-5}$  gram (g). Of the prefixes used before numbers the smallest is "trede" from the Danish "tredyvo" for 30, indicating  $10^{-30}$  of a unit. The highest is "dea" (Greek *deca*, ten) symbol D, indicating 10 groups of 3 zeros ( $10^{30}$ ) or a nonillion.

## Most Innumerate

The most innumerate people are the Nambiquara of northwest Matto Grosso of Brazil who lack any system of numbers. They do however have a verb which means "they are two alike."

## Prime Numbers

A prime number is any positive integer (excluding 1) having no integral factors other than itself and unity, e.g. 2, 3, 5, 7, or 11. The lowest prime number is thus 2. The highest known prime number is  $2^{216,091}-1$  discovered in Sept 1985 by analysts using a Cray X-MP/24 computer at Chevron Geosciences Co in Houston, Tex. It is the 30th known Mersenne prime, and contains 65,050 digits. The lowest non-prime or composite number (excluding 1) is 4.

## Perfect Numbers

A number is said to be perfect if it is equal to the sum of its divisors other than itself, e.g.  $1 + 2 + 4 + 7 + 14 = 28$ . The lowest perfect number is 6 ( $1 + 2 + 3$ ). The highest known, and the 30th so far discovered, is  $(2^{216,091} - 1) \times 2^{216,090}$ . It is a consequence of the highest known prime (see above).

## Highest Numbers

The highest lexicographically accepted named number in the system of successive powers of ten is the centillion, first recorded in 1852. It is the hundredth power of a million, or one followed by 600 zeros. The highest named number outside the decimal notation is the Buddhist *asankhyeya*, which is equal to  $10^{140}$ .

The number  $10^{100}$  is designated a Googol, a term devised by Dr Edward Kasner of the US (d 1955). Ten raised to the power of a Googol is described as a Googolplex. Some conception of the magnitude of such numbers can be gained when it is said that the number of electrons in some models of the observable universe probably does not exceed  $10^{87}$ .

The highest number ever used in a mathematical proof is a bounding value published in 1977 and known as Graham's number. It concerns bichromatic hypercubes and is inexpressible without the special "arrow" notation, devised by Knuth in 1976, extended to 64 layers. Mr Candelaria ("the only man infinity fears") of Loma Linda, Calif has devised a Large Number Denomination System concluding with a milli-decilli-fiveillionillion.

## Most Accurate and Inaccurate Versions of "Pi"

The greatest number of decimal places to which  $\pi$  ( $\pi$ ) has been calculated is 133,554,000 by Yasumasa Kanada (Japan) Jan 13, 1987, at the NEC Fuchu Factory, Tokyo. The printout was almost 20,000 pages long.

In 1897, the General Assembly of Indiana enacted in House Bill No. 246 that  $\pi$  was *de jure* 4, for the most inaccurate version.

## Longest and Shortest Time Measure

The longest measure of time is the *kalpa* in Hindu chronology. It is equivalent to 4,320 million years. In astronomy a cosmic year is the period of rotation of the sun around the center of the Milky Way galaxy, i.e. 225,000,000 years. In the Late Cretaceous Period of c. 85 million years ago, the earth rotated faster so resulting in 370.3 days per year, while in Cambrian times, some 600 million years ago, there is evidence that the year extended over 425 days.

Owing to variations in the length of a day, which is estimated to be increasing irregularly at the average rate of about a millisecond per century, due to the moon's tidal drag, the second has been redefined. Instead of being 1/86,400th part of a mean solar day, it has since 1960 been reckoned as 1/31,556,925.9747th part of the solar (or tropical) year at 1900 AD, Jan 0 less 12 hours, Ephemeris time. In 1958 the second of Ephemeris time was computed to be equivalent to  $9,192,631,770 \pm 20$  cycles of the radiation corresponding to the transition of a cesium 133 atom when unperturbed by exterior fields. The greatest diurnal change recorded has been 10 milliseconds on Aug

8, 1972, due to the most violent solar storm recorded in 370 years of observation.

The accuracy of the cesium beam frequency standard approaches 8 parts in  $10^{14}$  compared to 2 parts in  $10^{13}$  for the methane-stabilized helium-neon laser and 6 parts in  $10^{13}$  for the hydrogen maser.

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## PHYSICAL EXTREMES (TERRESTRIAL)

### Finest Balance

The most accurate balance is the Sartorius Model 4108, manufactured in Göttingen, W Germany, which can weigh objects of up to 0.5 grams (about .018 oz) to an accuracy of  $0.01\text{ }\mu\text{g}$  or  $0.00000001\text{ g}$ , which is equivalent to little more than one-sixtieth of the weight of the ink on a period dot (.).

### Largest Barometer

A water barometer 39 ft in height was constructed by Bert Bolle, Curator of the Barometer Museum, Maartensdijk, Netherlands where the instrument is situated.

### Largest Bubble Chamber

The largest bubble chamber is the \$7 million installation completed in Oct 1973, at Weston, Ill. It is 15 ft in diameter and contains 7,259 gallons of liquid hydrogen at a temperature of  $-247^{\circ}\text{C}$  ( $-412.6^{\circ}\text{F}$ ) with a superconducting magnet of 3 tesla.

### Fastest Centrifuge

Ultra-centrifuges were invented by Theodor Svedberg (b Aug 30, 1884) (Sweden) in 1923.

The highest man-made rotary speed ever achieved and the fastest speed of any earth-bound object is 4,500 mph by a swirling tapered 6-in carbon fiber rod in a vacuum at Birmingham University, England, reported Jan 24, 1975.

### Finest Cut

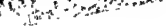
The \$13 million Large Optics Diamond Turning Machine at the Lawrence Livermore National Laboratory, Calif was reported in June 1983 to be able to sever a human hair 3,000 times lengthwise.

### Longest Echo

The longest recorded echo in any building is one of 15 sec following the closing of the door of the Chapel of the Mausoleum, Hamilton, Lanc, Eng built 1840-55.

### Most Powerful Electric Current

The most powerful electric current generated is that from the Zeus capacitor at the Los Alamos Scientific Laboratory, NM. If fired



a hole through a diamond by vaporization at  $10,000^{\circ}\text{C}$ , produced by  $2 \times 10^{23}$  photons.

The "Shiva" laser was reported at the Lawrence Livermore Laboratory, Calif to be concentrating  $2.6 \times 10^{13}$  watts into a pinhead-sized target for  $9.5 \times 10^{-11}$  sec in a test on May 18, 1978.

## Brightest Light

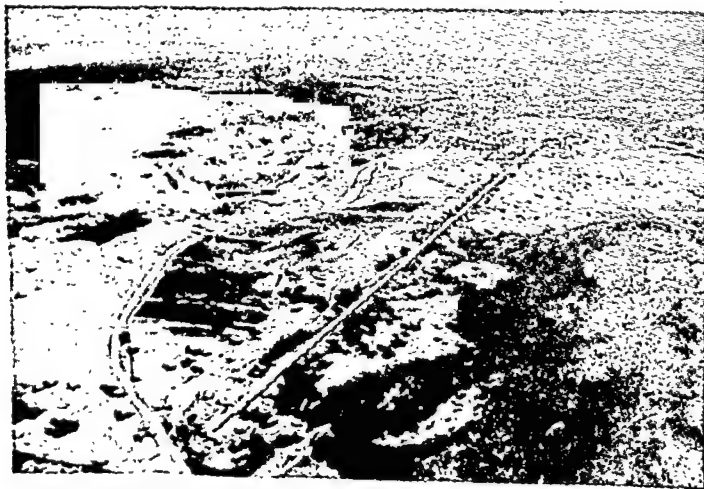
The brightest steady artificial light sources are laser beams, generated at the Los Alamos National Laboratory, NM, announced in Mar 1987 by Dr Robert Graham. An ultraviolet flash lasting 1 picosecond ( $1 \times 10^{-12}$  sec) is intensified by an energy of  $5 \times 10^{15}$  watts.

Of continuously burning sources, the most powerful is a 313-kW high pressure argon arc lamp of 1,200,000 candle power, completed by Vortek Industries, Inc of Vancouver, BC, Canada, in Mar 1984.

The most powerful searchlight ever developed was one produced during the 1939-45 war by the General Electric Company Ltd at the Hirst Research Centre in Wembley, Greater London, England. It had a consumption of 600 kW and gave an arc luminance of 300,000 candles per sq in and a maximum beam intensity of 2,700 million candles from its parabolic mirror (diameter 10 ft).

## Most Durable Light

The average bulb lasts for 750-1,000 hours. There is some evidence that a 5-watt carbide filament bulb made by the Shelby Electric Co and presented by Mr Bernell in the Fire Department, Livermore, Calif was first shedding light in 1901, and is still burning when lit.



**MOST POWERFUL LIGHT BEAM:** This 2-mi-long Linear Accelerator at Stanford, Calif, runs through the Santa Cruz mountains and produces a record light beam through a  $4 \times \frac{1}{2}$ -in. slit. A more powerful version, a Linear Collider or "atom smasher," costing \$115 million to begin operation in 1987 may "change the shape of particle physics." (*Science Photo Library*)



## Shortest Light Pulse

Charles Z. Shank and colleagues of the AT & T Laboratories in NJ achieved a light pulse of 8 femtoseconds ( $8 \times 10^{-15}$  sec) announced in 1985. The pulse comprised only 4 or 5 wavelengths of visible light or 2.4 micrometers long.

## Heaviest Magnet

The heaviest magnet is one measuring 196 ft in diameter, with a weight of 40,000 tons, for the 10 GeV synchrophasotron in the Joint Institute for Nuclear Research at Dubna, near Moscow.

## Weakest and Strongest Magnetic Fields

The weakest magnetic field ever measured is one of  $8 \times 10^{-15}$  tesla in the heavily shielded room at the Francis Bitter National Magnet Laboratory at MIT, Cambridge, Mass. It is used by Dr David Cohen for research into the very weak magnetic fields generated in the heart and brain.

The strongest continuous magnetic field strength has been one of 33.6 teslas achieved at the same laboratory on Mar 20, 1986, using a hybrid magnet with holmium pole pieces which enhanced the central

## Best Microphone

A microphone for a new technique of pressure measurement in fluid was developed in 1967 by Prof Ibrahim Kavrak of Bogazici Univ, Istanbul, Turkey. It has a frequency response of 10 Hz to 10 KHz and measures  $0.06 \times 0.03$  in

## Most Powerful Microscopes

The most powerful microscope is the scanning tunneling microscope built at the IBM Zurich, Switz, research laboratory in 1981. It has a magnifying ability of 100 million and is capable of resolving down to 100th the diameter of an atom ( $3 \times 10^{-10}$ ). The one now being developed is said to be "about the size of a finger tip."

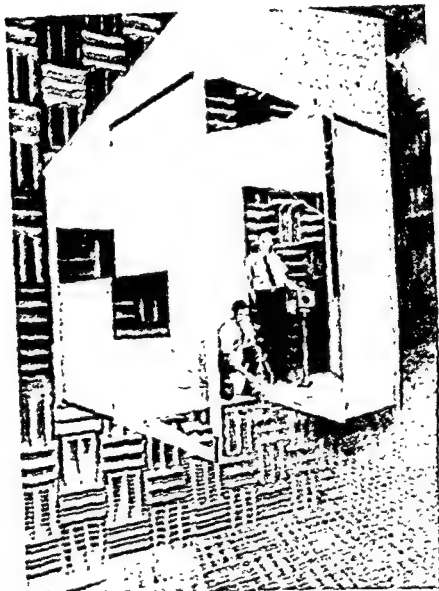
Using field ion microscopy the tips of probes of scanning tunneling microscopes have been shaped to end in a single atom—the three layers constituting the world's smallest man-made pyramid consisting of 7, 3 and 1 atoms. It was announced in July 1986 from AT & Bell Laboratories, Murray Hill, NJ that they had successfully isolated a single atom (probably of germanium) from the tungsten tip of a scanning tunneling microscope back on to a germanium surface.

## Lowest Noise

The loudest noise created in a laboratory is 210 decibels or 400,000 wattic watts reported by NASA in Oct 1965. The noise came from a 60-ft steel and concrete test bed with 60-ft-deep foundations at Huntsville, Ala. Holes can be bored in solid material by this means and the audible range has been put at 100 mi

## Lowest Note

The highest note yet attained is 60 gigahertz (60,000 million



**QUIETEST PLACE:** An echoless test chamber at Bell Labs in Murray Hill, NJ, is used to study reverberation, the problem that sometimes occurs during telephone conference calls, when it sounds as if one of the speakers is talking into a barrel.

vibrations per sec), generated by a laser beam striking a sapphire crystal at MIT, Cambridge, Mass., in Sept 1964.

### Most Powerful Particle Accelerator

The 6,562-ft diameter proton synchrotron at the Fermi National Accelerator Laboratory east of Batavia, Ill., is the highest-energy atom-smasher in the world. On May 14, 1976 an energy of 500 giga electron volts ( $5 \times 10^{11}$ ) was achieved for the first time. On Oct 13, 1985 a center of mass energy of 1.6 tera electron volts ( $1.6 \times 10^{12}$  electron volts) was achieved by colliding beams of protons and antiprotons. This involves 1,000 superconducting magnets maintained at a temperature of  $-452^\circ\text{F}$  by means of the world's largest helium liquefying plant, which produces 990 gallons per hour and began operating Apr 18, 1980.

The aim of CERN (*Conseil Européen pour la Recherche*) to collide beams of protons and antiprotons in their Super Proton Synchrotron (SPS) near Geneva, Switzerland, at  $270 \text{ GeV} \times 2 = 540 \text{ GeV}$  was achieved at 4:55 a.m. on July 10, 1981. This is the equivalent of striking a fixed target with protons at 150 TeV or 150,000 GeV.

The US Dept of Energy set up a study for a \$5 billion Super Superconductivity Collider (SSC) 1995 with two 20 TeV proton and antiproton colliding beams on Aug 16, 1983 with a diameter of 52 mi.

### Highest Pressures

The highest sustained laboratory pressures yet reported are of 1.70 megabars (12,320 tons force per sq in) achieved in the giant hydraulic diamond-faced press at the Carnegie Institution's Geophysical Laboratory in Washington, DC, reported in June 1978. This laboratory

announced solid hydrogen achieved at 57 kilobars pressure on March 2, 1979. If created, metallic hydrogen is expected to be silvery white but soft, with a density of 1.1 g/cc. The pressure required for this transition is estimated by H. K. Mao and P. M. Bell to be 1 megabar at 25°C. Using dynamic methods and impact speeds of up to 18,000 mph, momentary pressures of 75 million atmospheres (548,000 tons per sq in) were reported from the US in 1958.

## Sharpest Objects and Smallest Tubes

The sharpest objects yet made are glass micropipette tubes used in intracellular work on living cells. Techniques developed and applied by Prof Kenneth T. Brown and Dale G. Flaming of the Dept of Physiology, Univ of Calif, San Francisco, achieved by 1,977 beveled tips with an outer diameter of 0.02  $\mu\text{m}$  and 0.01  $\mu\text{m}$  inner diameter. The latter is smaller than the smallest known nickel tubing by a factor of 340 and is 6,500 times thinner than human hair.

## Lowest Temperatures

The lowest temperature reached is  $3 \times 10^{-8}$  Kelvin above absolute zero attained in a two-stage nuclear demagnetization cryostat at Espoo, Finland, by the team led by Prof Olli V. Lounasmaa (b 1930) and announced in June 1984. Absolute or thermodynamic temperatures are defined in terms of ratios rather than as differences reckoned from the unattainable absolute zero, which on the Kelvin scale is  $-273.15^\circ\text{C}$  or  $-459.67^\circ\text{F}$ . Thus the lowest temperature ever attained is 1 in  $9.1 \times 10^9$  of the melting point of ice ( $0^\circ\text{C}$  or 273.15K or  $32^\circ\text{F}$ ).

Tokyo University's Institute of Solid State Physics announced on Feb 15, 1983 that a team led by Prof Kazuo Ono had attained a temperature within 0.00003 of a degree of absolute zero at which molecular motion ceases.

## Highest Temperatures

The highest man-made temperatures yet attained are those produced at the center of a thermonuclear fusion bomb, which are of the order of 300 million–400 million°C. Of controllable temperatures, the highest effective laboratory figure reported is 230 million°C achieved at the Tokamak Fusion Test Reactor at the Princeton Plasma Physics Laboratory, NJ, in June 1986. A figure of 3000 million°C was reportedly achieved in the USSR with Ogra injection-mirror equipment in c 1962.

## Smallest Thermometer

Dr Frederick Sachs, a biophysicist at the State Univ of NY at Buffalo, has developed an ultra-microthermometer for measuring the temperature of single living cells. The tip is one micron in diameter, about 1/50th the diameter of a human hair.

## Highest Vacuum

The highest or "hardest" vacuums obtained in scientific research are of the order of  $10^{-14}$  torr, achieved at the IBM Thomas J. Watson Research Center, Yorktown Heights, NY in Oct 1976 in a cryogenic stem with temperatures down to  $-269^\circ\text{C}$  ( $-452^\circ\text{F}$ ). This is equiv-

alent to depopulating baseball-sized molecules from 1 yard apart to 50 miles apart.

### Highest Velocity

The highest velocity at which any solid visible object has been projected is 335,000 mph in the case of a plastic disc at the Naval Research Laboratory, Wash DC, reported in Aug 1980.

### Lowest Viscosity

The California Institute of Technology announced on Dec 1, 1957, that there was no measurable viscosity, *i.e.* perfect flow, in liquid helium II, which exists only at temperatures close to absolute zero ( $-273.15^{\circ}\text{C}$  or  $-459.67^{\circ}\text{F}$ ).

### Highest Voltage

The highest potential difference ever obtained in a laboratory has been  $32 \pm 1.5$  million volts by the National Electrostatics Corporation at Oak Ridge, Tenn, on May 17, 1979.

# The Arts & Entertainment

## 1. PAINTING

### Earliest Art

Evidence of Paleolithic art was first found in 1833 at Veyrier near Geneva, Switz, when Francois Mayor (1779–1854) found two spoon-like objects decorated with geometric figures. The oldest known dated examples come from La Ferrassie, near Les Eyzies in the Périgord, France, in layers dated to c. 25,000 bc. Blocks of stone were found with engraved animals and female symbols; some of the blocks also had symbols painted in red ochre. Pieces of ochre with ground facets have been found at Lake Mungo, NSW, Australia, in a context of c. 30,000 bc but there is no evidence whether these were used for body-painting or art.

### Largest Paintings

Kimiko Hibino (b 1942) completed what is now the world's largest painting, showing over 800 species of the Animal Kingdom on a canvas 1.86 miles long and 7.2 ft wide (70,709 sq ft) on Oct 27, 1985. It was unveiled with the help of 3,000 volunteers along the bank of the Arakawa River in Tokyo.

The largest "Old Master" is *Il Paradiso*, painted between 1587 and 1590 by Jacopo Robusti, *alias* Tintoretto (1518–94), and his son Domenico on the east wall of the Sala del Maggior Consiglio in the Palazzo Ducale (Doge's Palace) in Venice, Italy. The work is 72 ft 2 in long and 22 ft 11½ in high and contains some 350 human figures.

### Most Valuable Painting

The "Mona Lisa" (*La Gioconda*) by Leonardo da Vinci (1452–1519) in the Louvre, Paris, was assessed for insurance purposes at the highest figure ever at \$100 million for its move for exhibition in Washington, DC and NYC from Dec 14, 1962, to March 12, 1963. However, insurance was not concluded because the cost of the closest security precautions was less than that of the premiums. It was painted c. 1503–07 and measures 30.5 × 20.9 in. It is believed to portray

**\$39,900,000 PAINTING:**  
 Vincent Van Gogh's  
 "Sunflowers," one of 6 he  
 painted, was sold for this  
 record sum on Mar 30,  
 1987 at Christie's,  
 London to a Japanese  
 insurance company. ►



**HIGHEST PRICE WORK**  
 by a living artist was this  
 painting by the Dutch  
 artist Willem de Kooning  
 of "Two Women" which  
 sold at Christie's, NYC  
 for \$1,819,956 on Nov 2,  
 1984. This record was  
 surpassed on Nov 18,  
 1986, when an abstract  
 by another Dutch  
 modernist, Piet  
 Mondrian, titled  
 "Composition in a Square  
 with Red Corner" was  
 purchased by an  
 anonymous businessman  
 at Sotheby's, NY for  
 \$5,060,000. ▼



Mona (short for Madonna) Lisa Gherardini, the wife of Francesco del Giocondo of Florence, or Constanza d'Avalos, coincidentally nicknamed La Gioconda, mistress of Giuliano de Medici. Francis I, King of France, in 1517 bought the painting for his bathroom for 4,000 gold florins or 492 oz of gold now worth \$330,000.

### Highest Auction Prices

The highest price ever paid in a public auction for any painting was \$39.9 million for Van Gogh's "Sunflowers" at Christie's, London on Mar 30, 1987. The seller was Lady Beatty and the buyer Yasuda Fire



toilet paper, and sells his paintings "cheap and often." He also set other records—painting a 16 × 25 canvas of a skier in 43 sec at the Limelight Nightclub, Chicago on Oct 16, 1985, and painting for 12 hours non-stop (except for rest breaks) at the Penta Hotel, NYC, on July 15, 1987, during which time he made 103 paintings and sold 55 on the spot, donating the proceeds to the Boy Scouts of America.

### Most Repetitious Painter

Antonio Bin of Paris has painted the *Mona Lisa* on some 300 occasions. These copies sell for up to \$1,500 each.

### Youngest Exhibitor

Lewis Melville "Gino" Lyons (b Apr 30, 1962) painted his *Trees and Monkeys* on June 4, 1965, submitted it to the Royal Academy of Arts, England, on March 17, 1967, for its Annual Summer Exhibition, and it was exhibited on Apr 29, 1967.

**PROLIFIC MASTER:** ► Pablo Picasso at work on a sketch for one of the 147,800 works he produced in his lifetime—13,500 paintings, 100,000 prints, 34,000 book illustrations and 300 sculptures and ceramics, drawings and tapestries. His career lasted 78 years (1881–1973). (*Black Star London*)



► **MOST PROLIFIC LIVING PAINTER** proves he can produce by making 103 paintings in 12 consecutive hours. Morris Katz set a marathon record July 15, 1987 at the Penta Hotel, NYC, and sold 55 of the paintings on the spot, donating the proceeds to the Boy Scouts of America. (*David Spindel*)



## Oldest and Largest Museums

The oldest museum in the world is the Ashmolean Museum in Oxford, England, built in 1679-83. Since 1924 it has housed an exhibition of scientific instruments.

The largest single museum is the American Museum of Natural History between 77th and 81st Sts on Central Park West, NYC. Founded in 1874, it comprises 19 interconnected buildings with 23 acres of floor space.

The largest complex of museums is Washington, D.C.'s Smithsonian Institution, comprising 13 museums with 5,600 employees. The most popular museum in numbers of visitors is the Smithsonian Air and Space Museum, which opened in July 1976. On one day in 1984 the doors had to be closed when 118,437 people crowded in. The total attendance at the Smithsonian is about 24 million per year.

## Largest Galleries

The largest gallery showing modern art is located in Place Beaubourg, Paris, on the top floors of the Georges Pompidou National Center for Art and Culture. Named after the French president who first had the idea and who authorized the spending (some say foolishly) of many millions of francs, this museum is unusual on the outside. Looking more like an ocean liner or an ultramodern factory because of its escalator appendages, this art museum and library has changing exhibits on the lower floors, showing the latest in international art and design. Opened in 1977, it has a deluxe restaurant on its roof and a world record total of 183,000 sq ft of floor space.

The world's largest art gallery is the Winter Palace and the neighboring Hermitage in Leningrad, USSR. One has to walk 15 miles to visit each of the 322 galleries, which house nearly 3 million works of art and objects of archeological interest.

The most heavily endowed gallery is the J. Paul Getty Museum, Malibu, Calif, with \$1,600,000,000 in Jan 1974 plus \$90 million per year for acquisitions. It has 38 galleries.

## Finest Brush

The finest standard brush sold is the 000 in Series 7 by Winsor and Newton, known as the "triple goose." It is made of 150-200 Kolinsky sable hairs weighing 0.000529 oz.

## Largest and Highest-Priced Poster

The largest recorded poster on paper was one measuring 32 ft x 168 ft 10 in for a total area of 22,292 sq ft, constructed by the students of Osaka Gakun Univ, Osaka, Japan, on Oct 7, 1984.

The record price is £62,000 (\$93,000) for a poster advertising the 1902 Vienna Exhibition, designed by Koloman Maser (b Vienna, Mar 30, 1868, d Oct 18, 1918) sold at Christie's, London on Apr 1, 1985.

## Earliest Mural

The earliest known murals on man-made walls are the clay relief leopards at Catal Hüyük in southern Anatolia, Turkey, discovered by James Malaart at level VII in 1961 and dating from c. 6200 bc.

## Largest Mural

The largest "mural" was unveiled in 44 colors on the 30-story Villa Regina condominium, Biscayne Bay, Miami, Fla, on Mar 14, 1984 covering 300,000 sq ft. The longest recorded continuous mural was one stretching 1633 ft on the walls of the Royal Liverpool Children's Hospital, Alder Hey, Eng. It covers an area of 17,963 sq ft. *Future entries for this category will be assessed on overall area only.*

## Stained Glass

The oldest stained glass in the world represents the Prophets in a window of the cathedral of Augsburg, Bavaria, Germany, dating from c. 1050.

The largest stained glass window is the complete mural of The Resurrection Mausoleum, Justice, Ill, measuring 22,381 sq ft, in 2,448 panels completed in 1971. The back-lit stained glass mural installed in 1979 in the atrium of the Ramada Hotel, Dubai, United Arab Emirates, is 135 ft high.

## Largest Mosaic

The largest mosaic is on the walls of the central library of the Universidad Nacional Autónoma de México, Mexico City. There are four walls, the two largest measuring 12,949 sq ft each, representing the pre-Hispanic past.

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## 2. SCULPTURES

### Earliest Sculptures

The earliest known example of sculpture is a 2½-in-long figure of a horse carved from mammoth ivory dated to c. 28,000 BC, and found in the Vogelherd cave in W Germany. A piece of ox rib found in 1973 at Pech de l'Aze, Dordogne, France, in an early Middle Paleolithic layer of the Riss glaciation c.105,000 BC appears to have several possibly intentionally engraved lines on one side. A churingo or curved ivory plaque rubbed with red ochre from the Middle Paleolithic Mousterian site at Tata, Hungary, has been dated to 100,000 BC by the thorium/uranium method.

### Largest Sculptures

The largest sculptures are the mounted figures of Jefferson Davis (1808–89), Gen Robert Edward Lee (1807–70) and Gen Thomas Jonathan ("Stonewall") Jackson (1824–63), covering 1.33 acres on the face of Stone Mountain, near Atlanta, Ga. They are 90 ft high. Roy Faulkner was on the mountain face for 8 years 174 days with a thermo-jet torch, working with the sculptor Walker Kirtland Hancock and other helpers from Sept 12, 1963 to March 3, 1972.

The world's largest sculpture will probably not be completed for many years due to the death in 1982 of the sculptor who conceived the idea and spent 35 of his 74 years on the site at Thunderhead Mt in the southern Black Hills of South Dakota near Mt Rushmore. The



## Ground and Hill Figures

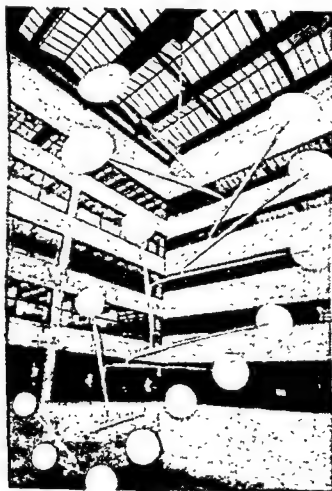
In the Nazca Desert 185 mi south of Lima, Peru there are straight lines (one more than 7 miles long), geometric shapes and shapes of plants and animals drawn on the ground sometime between 100 BC and 600 AD for an uncertain but probably religious, astronomical or even economic purpose by a not precisely identified civilization. They were first detected from the air c. 1928 and can only be recognized as artwork from the air.

In Aug 1968 a 330-ft-tall figure was found on a hill above Tarapacá, Chile.

## Most Massive Mobile

The most massive mobile is *White Cascade* weighing more than 8 tons and measuring 100 ft from top to bottom installed on May 24–25, 1976 at the Federal Reserve Bank of Philadelphia. It was designed by Alexander Calder (1898–1976), whose first mobiles were exhibited in Paris in 1932, and whose *Big Crinkley* sold for a record \$700,000 at Sotheby's, NYC on May 10, 1984.

**MOST MASSIVE  
MOBILE:** Alexander  
Calder's "White Cascade"  
can be seen in a bank in  
Philadelphia. (Edw. J.  
Bonner)



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## 3. LANGUAGE AND LITERATURE

### Earliest Language

The ability to speak is believed to be dependent upon physiological changes in the height of the larynx between *Homo erectus* and *Homo sapiens sapiens*, as developed c 45,000 BC.

The earliest written language discovered has been on Yangshao culture pottery from Paa-t'o, near Xi'an (Sian) in the Shanxi (Shensi) province of China found in 1962. This bears proto-characters for the numbers 5, 7 and 8 and has been dated to 5000–4000 BC.

The earliest dated pictographs are on clay tablets from Nippur, southern Iraq, from a level equivalent to Uruk V/VI and dated in 1979 to c. 3400 BC.

Tokens or tallies from Tepe Asiab and Ganji-I-Dareh Tepe in Iran have however been dated to 8500 BC.

## Oldest Language

The written language with the longest continuous history is Chinese, extending over more than 6,000 years from the Yangshao culture. (See *above*.)

## Oldest Words in English

It was first suggested in 1979 that languages ancestral to English and to Latvian (both Indo-European) split c. 3500 BC.

Shortly to be published research indicates that about 40 words of pre-Indo-European substrate survive in English, including *apple* (*apal*), *bad* (*bad*), *gold* (*gol*), and *tin* (*tin*).

The earliest known piece of English writing (c 630 AD) is a fragment of Irish uncial script in an ecclesiastical history sold for \$100,000 by the Folger Shakespeare Library, Wash, DC, to the British Rail Pension Fund at Sotheby's, London on June 25, 1985.

## Commonest Language

Today's world total of languages and dialects still spoken is about 5,000 of which some 845 come from India. The language spoken by more people than any other is Northern Chinese, or Mandarin, by an estimated 68% of the population, hence 709 million people in 1985. The so-called national language (*Guóyǔ*) is a standardized form of Northern Chinese (*Běifānghuà*) as spoken in the Peking area. This was alphabetized into *zhùyīn fùhào* of 37 letters in 1913. On Feb 11, 1938 the *Hanya-Pinyin-Fang'an* system, which is a phonetic pronunciation guide, was introduced.

The next most commonly spoken language and the most widespread is English, by an estimated 400 million in mid-1986. English is spoken by 10% or more of the population in 45 sovereign countries. In Great Britain and Ireland, there are 6 indigenous tongues: English, Cornish, Scots, Gaelic, Irish Gaelic, Welsh as well as Romany (gypsy).

## Largest Vocabulary

The English language contains about 490,000 words, plus another 300,000 technical terms, the most in any language, but it is doubtful if any individual uses more than 60,000. Those in Great Britain who have undergone a full 16 years of education use perhaps 5,000 words in speech and up to 10,000 words in written communications. The members of the International Society for Philosophical Enquiry (no admission for IQ's below 148) have an average vocabulary of 33,000 words.

## Greatest Linguist

The most multilingual living person in the world is Georges Henri Schmidt (b Strasbourg, France, Dec 28, 1914), who served as Chief of the UN Terminology Section 1965-71. In the 1975 edition of *Who's*

Who in the United Nations he listed "only" 19 languages because he was then unable to find the time to "revive" his former fluency in 12 others.

## Oldest Alphabet

The oldest letter is "O," unchanged in shape since its adoption in the Phoenician alphabet c. 1300 bc. The newest letters added to the English alphabet are "j" and "v," which are of post-Shakespearean use, c. 1630. Formerly they were used only as variants of "i" and "u." There are now some 65 alphabets in use.

## Longest Words

Lengthy concatenations and some compound or agglutinative words or nonce words are or have been written in the closed-up style of a single word.

The longest word ever to appear in literature occurs in *The Ecclesiastusae*, a comedy by Aristophanes (448–380 bc). In the Greek it is 170 letters long but transliterates into 182 letters in English, thus: lopadotemachoselachogaleokraniroleipsanodrimhypotrimmatosilphioparaomelitokatakechymenokichlepipikossyphophattoperisteralektryonoptekcephalliokigklopeleiolagoiosiraobaphetraganopterygon. The term describes a fricassee of 17 sweet and sour ingredients, including mullet, brains, honey, vinegar, pickles, marrow (the vegetable) and ouzo (a Greek drink laced with anisette).

The longest word in the Oxford English Dictionary is floccipaucinihilipilification (alternatively spelt in hyphenated form with "n" in seventh place), with 29 letters, meaning "the action of estimating as worthless," first used in 1741, and later by Sir Walter Scott (1771–1832). Webster's Third International Dictionary lists among its 450,000 entries pneumonoultramicroscopicsilicovolcanoconiosis (47 letters), the plural of a lung disease contracted by some miners.

The longest regularly formed English word is praetertranssubstantiationistically (37 letters), used by Mark McShane in his novel *Untimely Ripped*, published in 1963. The medical term hepaticocholangiocholecystenterostomies (39 letters) refers to the surgical creations of new communications between gall bladders and hepatic ducts and between intestines and gall bladders. The longest in common use are disproportionableness and incomprehensibilities (21 letters). Interdenominationalism (22 letters) is found in Webster's and hence perhaps interdenominationalistically (28 letters) is permissible.

## Most Meanings

The most overworked word in English is the word "set" which has 58 noun uses, 126 verbal uses and 10 as a participial adjective.

## Most Synonyms

The condition of being inebriated has more synonyms than any other condition or object. Delacorte Press has published a selection of 1,224 from 2,241 compiled by Paul Dickson of Garrett Park, Md

## Longest Palindromic Words

The longest known palindromic word (same spelling backwards as

forwards) is *saippuakivikauppias* (19 letters), the Finnish word for a dealer in lye. The longest in the English language is *redivider* (9 letters). The 9-letter word, *Malayalam*, is a proper noun given to the language of the Malayali people in Kerala, southern India, while *Kanakanak* near Dellingham, Alaska, is a 9-letter palindromic place name. The contrived chemical term *detartrated* has 11 letters. In American English the word *releveler* is also a 9-letter palindrome, though in England it is spelled *releveller* and hence is not palindromic.

## Commonest Words and Letters

In written English, the most frequently used words are, in order: the, of, and, to, a, in, that, is, I, it, for *and* as. The most used in conversation is I. The commonest letter is "e" and the commonest initial letter is "T."

### Shortest Pangram

Pangrammists who try to produce meaningful sentences of minimal length utilizing all the letters in the alphabet have now attained the ultimate of 26-letter brevity. Michael Jones of Chicago, compiled in 1984 the sentence to describe the situation in which a wryneck woodpecker from the grasslands of Africa climbed up the side of a male bovid which is grazing on sacred Muslim-owned land, viz: "Veldt jynx grimps waqf zho buck."

## Worst Tongue-Twisters

The most difficult tongue-twister is deemed by Ken Parkin of Teesside, England, to be "The sixth sick sheik's sixth sheep's sick"—especially when spoken quickly.

## Longest Abbreviation

The 55-letter full name of Los Angeles (El Pueblo de Nuestra Señora la Reina de los Angeles de Porciuncula) is abbreviated to LA, or 3.63% of its length.

## Longest Anagrams

The longest non-scientific English words which can form anagrams are the 18-letter transpositions "conservationists" and "conversationalists." The longest scientific transposals are *cholecystoduodenostomy/duodenocholecystostomy* and *hydropneumopericardium/pneumohydropericardium*, each of 22 letters.

## Smallest Letters

The 16 letters MOLECULAR DEVICES have been etched into a salt crystal by an electron beam so that the strokes are only 2 to 3 nm wide—the width of 20 hydrogen atoms. This was done by Michael Isaacson at Cornell University in Feb 1982.

## Longest Place Names

The official name for Bangkok, capital of Thailand, is Krungthep Mahanakhon. The full name is, however: Krungthep Mahanakhon Bovorn Ratanakosin Mahintharayutthaya Mahadilok pop Noparatrat-chathani Burirom Udomratchanivetmahasathan Amornpiman Avatarn-sathit Sakkathattiyavisnukarmprasit (167 letters) which, in the most scholarly transliteration, emerges with 175 letters.

## Shortest Place Names

The shortest place names in the world are the French village of Y (population 143), so named since 1241, the Danish village Å on the island Fyn, the Norwegian village of Å (pronounced "Aw"), the Swedish place Å in Vikholandet, U in the Caroline Islands of the Pacific, and the Japanese town of Sosei which is alternatively called Aioi or O. There was once a 6 in West Virginia. Today in the US, there are 10 two-lettered place names, including 7 in Kentucky: Ed, Uz, Oz, Ep, and Or, among them.

## Longest First Name

The longest name appearing on a birth certificate is that of Rhoshandiatellyneshiaunneveshenk Koyaansquatsiuty Williams born to Mr and Mrs James L. Williams in Beaumont, Tex, on Sept 12, 1984. On Oct 5, 1984, the father filed an amendment which expanded his daughter's first name to 1,019 letters and the middle name to 36 letters.

The longest Christian or given name on record is one of 622 letters given by Mr Scott Roaul Sör-Lökken of Missoula, Mont to his daughter Miss S. Ellen Georgianna Sör-Lökken (b 1979). The "S" stands for a 598-letter name designed to throw a monkey wrench into the computers of federal bureaucracy. She is known as "Snow Owl" for short or "Oli" for shorter.

## Most Christian Names

The great-great-grandson of Carlos III of Spain, Don Alfonso de Borbón y Borbón (1866-1934), had 94 Christian names, of which several were lengthened by hyphenation.

## Commonest Family Names

The commonest family name in the world is the Chinese name Chang (Zhang) which is borne, according to estimates, by between 9.7% and 12.1% of the Chinese population, so indicating even on the lower estimate that there are at least some 104 million Changs—more than the entire population of all but 7 of the 170 other sovereign countries of the world.

The commonest surname in the English-speaking world is Smith. The most recent published count showed 659,050 nationally insured Smiths in Great Britain, of whom 10,102 are plain John Smith, and another 19,502 are John plus one or more given-name Smiths. Including uninsured persons, there are over 800,000 Smiths in England and Wales alone. There are an estimated 2,382,509 Smiths in the US.

There are, however, estimated to be 1,600,000 persons in Britain



with M', Mc or Mac (Gaelic "son of") as part of their surnames. The commonest of these is Macdonald which accounts for about 55,000 of the Scottish population.

## Most Versions of a Family Name

Edward A. Nedelcov of Regina, Saskatchewan, Canada, has collected 990 versions of the spelling of his family name since 1960. Mzilikazi of Zululand (b c. 1795) had his name chronicled 325 spellings, according to researches by Dr R. Kent Rasmussen.

## Shortest Personal Name

The commonest single-letter surname is O, prevalent in Korea, with 52 examples in US phone books (1973-81) and 12 in Belgium. This name causes the most distress to those concerned with the prevention of cruelty to computers. Every other letter, except Q, has been traced in US phone books (used as a surname) by A. Ross Eckle. There are two one-letter Burmese names: E (calm), pronounced "aye," and U (egg), pronounced "oo." U used before the name means "uncle."

There exist among the 47,000,000 names on the Dept. of Health Social Security index 6 examples of a one-lettered surname.

## Last Word

In the US, the determination to derive commercial or other from being the last listing in the local telephone book has resulted in self-given names starting with up to 9 z's—the extreme example being Mr Zachary Zzzzzzzzzzzra in the San Francisco book. Last in the for North Hollywood, LA, however, is Mr B. Zzzzygot.

The last name in the 1985 London telephone book is the Coffee Shop in Grays's Inn Road.

## Oldest Mechanically Printed Book

It is generally accepted that the earliest mechanically printed full-length book was a "42-line" Gutenberg Bible, printed in Mainz, Germany, c. 1454 by Johann Henne zum Gensfleisch zur L. called "zu Gutenberg" (c. 1398-c. 1468). Work on watermarks published in 1967 indicates a copy of a surviving printed "Don" Latin grammar was made from paper made in c. 1450. The earliest exactly dated printed work is the Psalter completed Aug 14, 1455 by Johann Fust (c. 1400-1466) and Peter Schöffer (1425-1502), who had been Gutenberg's chief assistant. The earliest printing by William Caxton, though undated, would appear to be *The Recuyell of the Historyes of Troye* in Cologne in late 1473 to spring 1474.

A complete two-volume edition of the Gutenberg Bible, 1455, was sold for \$2.2 million at Christie's, NYC, on April 7, 1977. Of only 21 extant complete copies, the Gutenberg, was sold to the General Theological Seminary, NYC to the Stuttgart (W G) State Library.

## Manuscript

The highest price ever paid for a complete manuscript was \$5 million (\$5 million) by Armand Hammer at Christie's, London.

12, 1920 for Leonardo da Vinci's 36-page Codex Leicester illustrated manuscript on cosmology compiled in c 1507.

### Musical Manuscript

The highest price paid was \$4,394,500 for a manuscript containing 9 symphonies by Wolfgang Amadeus Mozart (1756-91) at Sotheby's, London, on May 22, 1987. The manuscript contains Symphonies Nos. 22 through 30, all probably composed in Salzburg, Austria, in 1773 and 1774, when Mozart was still in his teens. The anonymous purchaser offered the manuscript for display to the Pierpont Morgan Library in NYC.

### Smallest Book

The smallest marketed bound printed book with cursive material is one printed on 22 gsm paper measuring 1 mm  $\times$  1 mm ( $\frac{1}{32}$   $\times$   $\frac{1}{32}$  in), comprising the children's story "Old King Cole" and published in 85 copies in Mar 1925 by The Gleniffer Press of Paisley, Scotland. The pages can only be turned (with care) by the use of a needle.

### Largest and Longest Diaries

Col Ernest Loftus (GB) of Harare, Zimbabwe began his daily diary on May 4, 1896 at the age of 12 and has thus completed 91 years.

George C. Edler (b 1889) has been keeping a diary since Jan 1, 1910, a total of 77 years to date, and is still continuing while confined to a nursing home in Bethesda, Md. The diaries are in bound book form—77 volumes containing an estimated 2,859,000 words.

### Longest Index

The Tenth Collective Index of *Chemical Abstracts*, completed in June 1983, contains 23,948,253 entries in 131,445 pages in 75 volumes, and weighs 350 lb.

### Largest Publication

The largest publication in the world is the 1,112-volume set of *British Parliamentary Papers* of 1800-1900 published by the Irish University Press in 1968-1972. A complete set weighs 3.64 tons, cost \$74,900 in mid-1985 and would take 6 years to read at 10 hours per day. The production and leather binding required the skins of 34,000 Indian goats and the use of \$22,000 worth of gold ingots. The total print run was 500 sets, and the price per set in 1984 was \$54,600.

### Most Expensive Paged Work

The highest price paid for any book was \$11.9 million for the 226-leaf manuscript "The Gospel Book of Henry the Lion, Duke of Saxony" at Sotheby's, London on Dec 6, 1983. The book, 13  $\frac{1}{2}$   $\times$  10 in, was illuminated by the monk Herimann in c. 1170 at Helmshausen.

sen Abbey with 41 full-page illustrations, and was bought by Hans Kraus of NYC for the Hermann Abs consortium.

The highest price ever paid for a printed book is \$2,400,000 for one of the only 21 known complete copies of the Gutenberg Bible, printed in Mainz, (West) Germany, in c. 1454. It was bought from the Carl and Lily Pforzheimer Foundation by the University of Texas in a sale arranged by Quaritch of London in NYC, June 9, 1978.

The most expensive new book is *The Birds of America*, containing a full set of reproductions by John James Audubon (1785–1851) of ornithological prints, published by the Abbeville Press, NYC, to sell for \$15,000.

## Largest Dictionary

The largest English language dictionary is the 12-volume Royal quarto *Oxford English Dictionary* of 15,487 pages published between 1884 and 1928 with a first supplement of 963 pages in 1933 and a further 4-volume supplement, edited by R. W. Burchfield. The final volume (Se-Z and the bibliography) was published in 1986. The work contains 414,825 word listings, 1,827,306 illustrative quotations and reputedly 227,779,589 letters and figures, 63.8 times more than the Bible. The greatest outside contributor has been Marghanita Laski with 175,000 quotations since 1958.

*Deutsches Wörterbuch* started by Jacob and Wilhelm Grimm in 1854 was completed in 34,519 pages and 33 volumes in 1971. Today's price is DM5,456.97 (now \$3,000).

The *New Grove Dictionary of Music and Musicians* (edited by: Stanley Sadie, b 1930) published in 20 volumes by Macmillan's in Feb 1981 contains over 22 million words and 4,500 illustrations and is the largest specialist dictionary.

## Earliest and Largest Encyclopaediae

The earliest known encyclopaedia was compiled in Athens by Hecataeus of Miletus (c. 400–c. 350 BC) in c. 370 BC. He was a nephew of Plato.

The largest encyclopaedia is *La Enciclopedia Universal Ilustrada Europeo-Americana* (J. Espasa & Sons, Madrid and Barcelona) totaling 35,000 pages in 104 volumes with 10 appendices and an annual supplement since 1935 comprising 165,200,000 words. The price is \$225.

## Most Comprehensive Encyclopaedia

The most comprehensive English language encyclopaedia is the *Encyclopaedia Britannica*, first published in Edinburgh, Scotland, in 1768–1771. A group of booksellers in the US acquired reprint rights in 1898 and complete ownership in 1899. In 1943, the *Britannica* was given to the University of Chicago. The current 15-volume 15th edition contains 33,141 pages and 43 million words from 4,277 contributors. It is now edited in Chicago and in London.

## Oldest Bible

The oldest known bible is the *Codex Vaticanus* written in Greek c. 350 AD and preserved in the Vatican Museum, Rome.

The earliest complete Bible *printed* in English was one edited by Miles Coverdale, Bishop of Exeter (c. 1488–1569), while living in Antwerp, and printed in 1535. William Tyndale's New Testament in English had, however, been printed in Cologne and in Worms, Germany in 1525 while John Wycliffe's first manuscript translation dates from 1382.

## Maps

The oldest known map of any kind is a clay tablet depicting the Euphrates River flowing through northern Mesopotamia (Iraq), dated c. 3800 BC. The earliest printed map in the world is one of western China dated to 1115 AD.

The largest is a "Giant Relief Map of California," by Reuben Hall displayed in the Ferry Building, San Francisco, from 1924 to 1962, now in storage at Hamilton Air Force Base, Novato, Calif, which measures 450 × 18 ft and weighs 43 tons.

## Highest-Priced Printed Document

A newly discovered copy of the Declaration of Independence, the 22nd copy known to exist, printed in 1776 by Samuel T. Freeman & Co, was auctioned to the Chapin Library, Williams College on Apr 22, 1983, at Christie's, NYC, for \$412,500, setting a record for printed documents.

The highest price paid at auction for a rare copy of the first printing in 1789 of the US Constitution was \$110,000 at Sotheby's, NYC on May 13, 1987.

## Highest-Priced Atlas

The highest price paid for an atlas is \$700,000 for a Gerardus Mercator atlas of c. 1571 Europe sold at auction at Sotheby's, London, March 13, 1979.

## Post Cards

The top-selling post card of all time was said to be a drawing by Donald McGill (1875–1962) with the caption: He: "Do you like Kipling?" She: "I don't know, you naughty boy, I've never kipped." It sold about 6 million. Between 1904 and his death, McGill sold more than 350 million cards to users and deltiologists (picture post card collectors).

## Longest Novel

The longest important novel ever published is *Les hommes de bonne volonté* by Louis Henri Jean Farigoule (1885–1972), *alias* Jules Romains, of France, in 27 volumes in 1932–46. The English version, *Men of Good Will*, was published in 14 volumes in 1933–46 as a "novel-cycle." The 4,959-page edition published by Peter Davies Ltd has an estimated 2,070,000 words, excluding a 100-page index. The novel *Tokuga-Wa Ieyasu* by Sohachi Yamaoka has been serialized in Japanese daily newspapers since 1951. Now completed, it required 40 volumes in book form.



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Aug 12, 1925) and his twin Alan Ross McWhirter (killed Nov 27, 1975). Its cumulative sale in 26 languages to mid-1987 is in excess of 57 million copies.

It is believed that the 1879 edition of *The McGuffey Reader*, compiled by Henry Vail and published for school distribution in the US by Van Antwerp Bragg and Co, sold 60 million copies in the pre-copyright era.

The novel with the highest sales has been *Valley of the Dolls* (first published March 1966) by Jacqueline Susann (Mrs Irving Mansfield) (1921-74) with a worldwide total of 28,712,000 to May 1, 1987. In the first 6 months Bantam sold 6.8 million.

The longest duration on *The New York Times* best sellers' list (founded 1935) is "A Light in the Attic" by Shelby Silverstein (b 1932) which on Jan 10, 1985 had its 112th week on the lists.

## Greatest Advance

The greatest advance royalty paid for any book is \$5,000,000 paid for an unpublished work titled *Whirlwind* by James Clavell at an auction in NYC won by William Morrow & Co and its affiliated company, Avon Books, both of NYC.

## Slowest Seller

The accolade for the world's slowest-selling book (known in publishing as slooow-sellers) probably belongs to David Wilkins' translation of the New Testament from Coptic into Latin, published by Oxford University Press in 1716 with 500 copies. Selling an average of one each 139 days, it remained in print for 191 years.

## Oldest Authoress

The oldest authoress was Mrs Alice Pollock (*née* Wykeham-Martin) (1868-1971) of Haslemere, Surrey, England, whose book *Portrait of My Victorian Youth* (Johnson Publications) was published in March 1971 when she was aged 102 years 8 months.

## Youngest Authoress

The youngest recorded commercially published author is Dorothy Straight (b May 25, 1958) of Washington, DC, who wrote *How the World Began* in 1962, aged 4. It was published in Aug 1964 by Pantheon Books.

## Most Rejections

The greatest recorded number of publishers' rejections for a manuscript is 223 (by Mar 1986) for the 130,000-word manuscript *World Government Crusade* written in 1966 by Gilbert Young (b 1906) of Bath, Eng. The record for rejections before publication (and wide acclaim) is 69 from 55 publishers in the case of Prof Steven Goldberg's *The Inevitability of Patriarchy*.

## Highest-Paid Writer

In 1958, a Mrs Deborah Schneider of Minneapolis wrote 25 words to complete a sentence in a competition for the best blurb for Plymouth cars. She won from about 1,400,000 entrants the prize of \$500 every



month for life. On normal life expectations she would collect \$12,000 per word. No known anthology includes Mrs Schneider's deathless prose.

## Longest Biography

The longest biography in publishing history is that of Sir Winston Churchill by his son Randolph (4,832 pages) and Martin Gilbert (13,830 pages) to date comprising some 8,214,000 words.

Georges Simenon (b Feb 13, 1903, Liege, Belgium) wrote 22 autobiographical books from 1972 to date.

## Interviewer

The writer who has interviewed most heads of state and heads of government is Brian Rossiter Crozier (GB) (b Aug 4, 1918) with 58 from 36 countries in the period 1948-85.

## Fastest and Slowest Publishing

The fastest time in which a book has been published is less than 24 hours by Corgi Books (Eng) from receipt of final manuscript to finished copies, in the case of John Lisners' *The House of Horrors*, a 223-page paperback on the mass murderer in North London, Dennis Nilsen sentenced to life imprisonment at 4:23 PM on Nov 4, 1983.

The fastest time in which a hardback book has been published is 43 hours 15 min in the case of *The ITN Book of the Royal Wedding*, published by Michael O'Mara. Typesetting began at 2:00 PM on July 24, 1986 and the books were on sale at 9:15 PM two days later.

The slowest was the German dictionary *Deutsche Worterbuch*, begun by the brothers Grimm in 1854 and finished in 1971.

Slowest proofreading record goes to Oxford Univ Press who sent out proofs of *Constable's Presentment to the Dugdale Society* in Dec 1949 and received them back 35 years later, in Dec 1984.

## Highest Printings

The world's most widely distributed book is the Bible, which has been translated into 286 languages and portions of it into a further 1,522 languages. This compares with 222 languages for *Lenin*. It has been estimated that between 1815 and 1975 some 2,500,000,000 copies were printed of which 1,500,000,000 were handled by Bible Societies.

It has been reported that 800 million copies of the red-covered booklet *Quotations from the Works of Mao Tse-tung* were sold or distributed between June 1966, when possession became virtually mandatory in China, and Sept 1971, when their promoter, Marshal Lin Piao, died in an air crash.

The total disposal through non-commercial channels by Jehovah's Witnesses of *The Truth That Leads to Eternal Life*, published by the Watchtower Bible and Tract Society of Brooklyn, NYC (1968), reached 106,486,735 in 116 languages by May 1, 1987.

## Largest Printers

The largest printers in the world are R. R. Donnelley & Co of Chicago. The company, founded in 1864, has plants in 15 main

centers, and has turned out \$2,233,000,000 worth of work per year. More than 140,000 tons of inks and 1,725,000 tons of paper and board are consumed every year.

The largest printer under one roof is the US Government Printing Office in Washington, DC, founded in 1860. The Superintendent of Documents sells almost \$60 million worth of US governmental publications every year, has had as many as 20,000 (now 17,200) titles in print, and receives 6,500 mail orders each day.

### Longest-Lived Comic Strip

The most durable newspaper comic strip has been the Katzenjammer Kids (Hans and Fritz) created by Rudolph Dirks, first published in the *New York Journal* on Dec 12, 1897, and carried on by his son.

The earliest strip was *The Yellow Kid* which first appeared in the *New York Journal* on Oct 18, 1896. The most widely syndicated is "Peanuts"® by Charles Schulz, which is syndicated by United Features Syndicate in 26 languages in 2,012 newspapers in 68 countries with an estimated circulation of 78½ million daily. It began in Oct 1950. In 1986, the income from his comic strip brought Schulz an estimated \$1 million per month.

### Most Widely Syndicated Columnist

The most widely syndicated columnist is Ann Landers (*née* Eppie Lederer) (b July 14, 1918) whose words now appear in 1,000 newspapers with an estimated readership of 85 million. In Feb 1987 she switched after 32 years from the *Chicago Sun-Times* to the *Chicago Tribune*.

Ranan R. Lurie (b May 26, 1932) is the most widely syndicated political cartoonist in the world. His work is published in 51 countries in 400 newspapers with a circulation of 62 million copies.

### Most Expensive Autographs

The highest price ever paid on the open market for a single autograph letter signed is \$360,000 paid on Oct 29, 1986 at Sotheby's, NY for a letter by Thomas Jefferson condemning prejudice against Jews in 1818. It was sold by Charles Rosenbloom of Pittsburgh.

The highest price ever for a single letter is \$110,000 (\$100,000 to the seller plus \$10,000 commission to the auction gallery) paid on Oct 18, 1979 at the Hamilton Galleries, NYC, for a tiny note—actually a receipt—signed by Button Gwinnett (1732–77) of Georgia, one of the lesser known signers of the Declaration of Independence.

The highest price for the autograph of a living person was \$12,500 paid at the Hamilton Galleries on Jan 22, 1981, for a letter from President Ronald Reagan praising Frank Sinatra.

A record \$4,675 was paid at a Hamilton sale on Aug 12, 1982 by Barry D Hoffman for the signed portrait of Al Capone (1899–1947).

### Most Valuable Autographs

Only one example of the signature of Christopher Marlowe (1565–93) is known. It is in the Kent County Archives, England, on a will of 1583. It is estimated that a seventh Shakespearean signature would realize at least \$1.5 million at auction.



## Largest Libraries

The largest library is the Library of Congress (founded Apr 24, 1800), on Capitol Hill, Washington, DC. By 1987, it contained 85 million items, including 22 million books and pamphlets. With the James Madison Memorial Building, which was dedicated in Apr 1980, the buildings contain 64.6 acres of floor space and 532 miles of book shelves.

The largest non-statutory library is the New York Public Library (founded 1895) on Fifth Avenue, NYC, with a floor area of 525,276 sq ft and 88 miles of shelving. Including 81 branch libraries, its collection embraces 11,907,217 volumes, 14,466,478 manuscripts, and 363,679 maps.

## Overdue Books

The most overdue book taken out by a known borrower was a book on febrile diseases (London, 1805, by Dr J. Currie) checked out in 1823 from the University of Cincinnati Medical Library and reported returned Dec 7, 1968, by the borrower's great-grandson Richard Dodd. The fine was calculated as \$2,264, but waived.

## Most Personal Mail

The highest confirmed count of letters received by any private citizen in a year is 900,000 letters by baseball star Henry Aaron, reported by the US Postal Department in June 1974 the year that he surpassed Babe Ruth's career home run record. About a third of them were letters of hate.

## Oldest Newspapers

A copy has survived of a news pamphlet published in Cologne, Germany in 1470.

The oldest existing newspaper in the world is the Swedish official journal *Post och Inrikes Tidningar*, founded in 1645. It is published by the Royal Swedish Academy of Letters.

## Most Newspapers

The US had 1,692 English-language daily newspapers on May 1, 1985. They had a combined net paid circulation of 62 million copies per day. The peak year for US newspapers was 1910 when there were 2,202. The leading newspaper readers in the world are the people of Sweden, where 580 newspapers were sold per each 1,000 persons in 1985.

## Largest and Smallest Newspaper Issue

The most massive single issue of a newspaper was *The New York Times* of Sunday, Oct 17, 1965. It comprised 15 sections with a total of 946 pages, including about 1,200,000 lines of advertising. Each copy weighed 7½ lb and sold for 50 cents locally.

The largest page size ever used has been 51 in × 35 in for *The Constellation*, printed in 1859 by George Roberts as part of the Fourth of July celebrations in NYC.

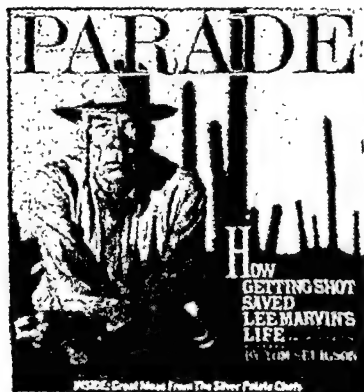
The smallest original page size has been 3 × 3¼ in of the *Daily*

Banner (25 cents per month) of Roseberg, Ore, issues of which, dated Feb 1 and 2, 1876, survive.

## Highest Newspaper Circulation

The highest circulation for any newspaper is that for the *Yomiuri Shimbun* (founded 1874) of Japan which attained a figure of 14,247,132 on Apr 1, 1987. This has been achieved by totaling the figures for editions published in various centers with a morning circulation of 9,278,686 and an evening circulation of 4,968,446. It has a staff of 3,060 and 436 bureaus.

*Trud*, the Soviet trade union daily, is printed in 53 cities in 15 million copies of which only 70,000 are bought at newsstands.



### HIGHEST CIRCULATION:

"Parade," the Sunday newspaper color supplement which is distributed with 310 newspapers, has a total circulation of more than 32 million weekly. It often features stars like Lee Marvin. "Parade" also obtains the highest rates for advertising—\$366,300 for a 4-color back cover.

## Largest Circulation Periodicals

The largest circulation of any weekly periodical is that of *TV Guide* which, in 1974, became the first magazine in history to sell a billion copies in a year. The weekly average for July to Dec 1986, was 16,800,441.

In its 39 basic international editions the *Reader's Digest* (established Feb 1922) circulates 28,000,000 copies monthly, in 15 languages including a US edition of 16,250,000 copies guaranteed.

*Parade*, the syndicated Sunday newspaper color magazine supplement, is distributed with 310 newspapers every Sunday. The current circulation (1987) is 32,332,000.

## Most Durable Advertiser

The Jos Neel Co, a clothing store in Macon, Ga (founded 1880) has run an ad in the *Macon Telegraph* every day in the upper left hand corner of page 2 since Feb 22, 1889 or 35,760 times to Mar 1987.

## Advertising Rates

The highest price ever for a single page of advertising is \$366,300 for a four-color back cover of *Parade* in late 1987. The record for





## Most Valuable Cello

The highest price paid at auction for a violoncello is \$290,000 at Sotheby's, London on Nov 8, 1978 for a Stradivarius made in Cremona, Italy in 1710.

## Most Durable Musicians

Elise Maude Stanley Hall (1877-1976) gave piano recitals for 90 years, giving her final concert in Rustenburg, Transvaal, S Africa aged 97. Charles Bridgeman (1779-1873) of All Saints Parish Church, Hertford, Eng, who was appointed organist in 1792, was still playing 81 years later in 1873. Norwegian pianist Reidar Thommesen (b June 7, 1889) played over 30 hours a week in theatre cafés when he was in his 90's.

## Most Valuable Violin

At an auction for the Lady Blunt Stradivarius violin of 1721, the asking price was £820,000 (\$1,148,000) at Sotheby's London on Nov 14, 1985, but bids failed to reach that level.

The highest price ever paid at auction for a violin or any musical instrument is £440,000 (\$704,000) for "The Colossus Stradivarius" dated 1716 at Christie's London on April 29, 1987. Some 700 of the 1,116 violins by Stradivarius (1644-1737) have survived. His Alarol violin was confirmed by Jacques Francais to have been sold in 1981 by private treaty by W. E. Hill Co (Eng) for \$1.2 million to a Singaporean.

## Most Durable Fiddlers

Rolland S. Tapley retired as a violinist from the Boston Symphony Orchestra after playing for a reputedly unrivaled 58 years from Feb 1920 to Aug 27, 1978. Otto E. Funk, 62, walked 4,165 miles from NYC to San Francisco, playing his Hopf violin every step of the way westward. He arrived June 16, 1929, after 183 days on the road.

## Largest and Most Expensive Guitars

The largest and presumably also the loudest playable guitar is one 14 ft 3¼ in tall and 309 lb, built by Joe Kovacic of Lado Musical, Inc., Scarborough, Ont, Canada.

The most expensive standard-sized guitar is the German chittara battente, built by Jacob Stadler (dated 1624), which sold for £10,500 (\$25,200) at Christie's, London, June 12, 1974.

## Largest Harp

What is probably the world's largest true playable harp was built in 1982 in Santa Fe, N Mex. Standing 13 ft 4 in high and measuring 7½ ft in width and 48 in in depth, it is built to scale 2½ times as large as a concert harp. The work of Wave Roark Barron with Kristin Novaswan and Lee Barrón, it has an enclosed sound box, a harmonic curve, 41 stainless steel aircraft cable strings, brushed steel revolving base, hand molded redwood trunk seat for two, and can be plucked by hand or played by wind. Sale price: \$15,000.





barrel was made of spruce wood by Swiss-born Peter Wutherich, 68, of Boise, Idaho, and shown on KBCI-TV on Feb 20, 1987. It took 754 hours of labor over a year and a half to complete.

## **Largest Drum**

The largest drum ever constructed was one 12 ft in diameter weighing 600 lb for the Boston World Peace Jubilee of 1872.

## **Easiest and Most Difficult Instruments**

The American Music Conference announced in Sept 1977 that the easiest instrument is the ukelele and the most difficult are the French horn and the oboe. The latter has been described as "the ill woodwind that no one blows good."

## **Stringed Instruments**

The largest moveable stringed instrument ever constructed was a pantaleon with 270 strings stretched over 50 sq ft, used by George Noel in 1767.

The greatest number of musicians required to operate a single instrument was the 6 needed to play the gigantic orchestron, known as the Appolonican, built in 1816 and played until 1840.

## **Largest Orchestras**

The most massive band ever assembled was one of 20,100 at the Jllevaal Stadium, Oslo, June 28, 1964, made up of Norges Musikcorps Forbund bands from all over Norway.

On Apr 17, 1982, 6,179 "musicians" congregated at Bay Shore Mall, Milwaukee, Wis, for a rendering of Sousa's "Stars and Stripes Forever." According to one music critic, the "instruments included kazoes, 7-Up bottles, one-man-band contraptions, coffee cans, bongo drums and anything-you-can-thump-on. At times you could almost tell what they were playing."

## **Largest Choir**

Excluding "sing-alongs" by stadium crowds, the largest choir was one of 60,000 which sang in unison as a finale of a choral contest among 160,000 participants in Breslau, Germany on Aug 2, 1937.

## **Greatest Classical Concert Attendance**

The greatest attendance at any classical concert was an estimated 800,000 at a free open-air concert by the NY Philharmonic on the Great Lawn of Central Park, NYC, on July 5, 1986, as part of the Statue of Liberty Weekend. A record number of police—22,000—kept order and "fostered a friendly mood" for the entire weekend in Manhattan.

## **Pop Concert Attendance**

Estimating the size of audiences at open-air events where no one pays admission is often left to police departments, newspaper and television reporters, city officials, concert promoters and the featured players' publicity agents. Although the crowds are enormous in



Central Park, NYC, on the Washington Mall and elsewhere, estimates vary widely and there is no way to check accuracy.

The best claims are: 400,000 at an Elton John concert in Central Park on Sept 13, 1980; 500,000 (?) at a Simon and Garfunkel reunion concert also in Central Park a year later. Diana Ross is said to have drawn 800,000 to her Central Park concert that was rained out on July 21, 1983.

A claim of 600,000 was made for a rock festival ("Summer Jam") at Watkins Glen, NY July 29, 1973. Of those attending, only 150,000 actually paid for admission. There were 12 "sound towers."

Some 175,000 in the Maracã Stadium, Rio de Janeiro, Brazil paid to hear Frank Sinatra (b 1915) sing on Jan 26, 1980.

## Most Prolific Composers

The most prolific composer of all time was probably Georg Philipp Telemann (1681-1767) of Germany. He composed 12 complete sets of services (one cantata every Sunday) for a year, 78 services for special occasions, 40 operas, 600 to 700 orchestral suites, 44 Passions, plus concertos and chamber music.

The most prolific symphonist was Johann Melchior Molter (c. 1695-1765) of Germany, who wrote 165. Joseph Haydn (1732-1809) of Austria wrote 104 numbered symphonies, some of which are regularly played today.

Among classical composers the most prolific and rapid was Wolfgang Amadeus Mozart (1756-91) of Austria, who wrote c. 1,000 operas, operettas, symphonies, violin sonatas, divertimenti, serenades, motets, concertos for piano and many other instruments, string quartets, other chamber music, masses and litanies, of which only 70 were published before he died, aged 35. His opera *The Clemency of Titus* (1791) was written in 18 days and three symphonic masterpieces, *Symphony No. 39 in E flat major*, *Symphony No. 40 in G minor* and the "Jupiter" *Symphony No. 41 in C major*, were reputedly written in the space of 42 days in 1788. His overture to *Don Giovanni* was written in full score at one sitting in Prague in 1787 and finished on the day of its opening performance.

## Marching Bands

The largest marching band was assembled by the Los Angeles Dodgers at Dodger Stadium on Apr 15, 1985. It consisted of 3,182 musicians and 1,342 majorettes, flag bearers, drill team members and directors for a total of 4,524 students from 52 high schools in the area. They played 3 tunes as well as the National Anthem under the directorship of Danny Kaye (1913-87). The longest recorded musical march by a marching band is one of 37.9 miles from Lillehammer to Hamar, Norway, in 15 hours when, on May 10, 1980, 26 of 35 members of the Trondheim Brass Band survived the playing of 135 marches.

## Longest Symphony

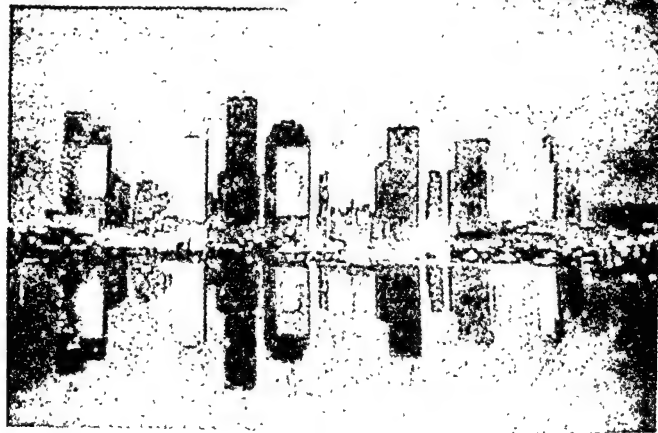
The longest of all single classical symphonies is the orchestral *Symphony No. 3 in D minor* by Gustav Mahler (1860–1911) of Austria. This work, composed in 1896, requires a contralto, a women's and a boys' choir, in addition to a full orchestra. A full performance requires 1 hour 40 min, of which the first movement alone takes between 30 and 36 min.

The *Symphony No. 2* (the Gothic) composed in 1919–22 by Havergal Brian (1876–1972) was played by over 800 performers (4 brass bands) in the Victoria Hall, Hanley, Staffordshire, England on May 21, 1978, conducted by Trevor Stokes. A recent broadcast required 1 hour 45½ min. Brian wrote an even vaster work based on Shelley's *Prometheus Unbound* lasting 4 hours 11 min but the full score has been missing since 1961.

The symphony *Victory at Sea* written by Richard Rodgers and arranged by Robert Russell Bennett for NBC-TV in 1952 lasted 13 hours.



**BIGGEST CROWD** ever to witness a sound-light display (below) on Apr 5, 1986, saw laser-beam pictures flashed on buildings' screens in downtown Houston, Tex. An estimated 1,300,000 people came to enjoy the show—searchlights prying the clouds, as well as original music for the occasion by French composer Jean-Michel Jarré of France (left) (b Aug 24, 1948). It caused the biggest traffic jam in Houston history.



## Longest Piano Compositions

The longest continuous non-repetitious piece for piano ever specifically composed for the piano has been "The Well-Tuned Piano" by La Monte Young first presented by the Dia Art Foundation at the Concert Hall, Harrison St, NYC on Feb 28, 1980. The piece lasted 4 hours 12 min 10 sec.

*Symphonic Variations*, composed in the 1930's, by Kaikhosru Shapurji Sorabji (b 1892) into 500 pages of close manuscript in 3 volumes would last for 6 hours at the prescribed tempo.

## Greatest Span

The pianist Sergei Vassilievitch Rachmaninov (1873-1943) had a span of 12 white notes and could play a left-hand chord of C, E flat, G, C, G.

## Highest-Paid Pianist

The highest-paid classical concert pianist was Ignace Jan Paderewski (1860-1941), Prime Minister of Poland (1919-21), who cumulated a fortune estimated at \$5 million of which \$500,000 was made in a single season in 1922-23. The *nouveau riche* wife of a US industrialist once required him to play in her house behind a curtain. Wladziu Valentino Liberace (1917-87) earned more than \$2 million in a 26-week season with a peak of \$138,000 for a single night's performance at Madison Square Garden, NYC, in 1954.

Between 1937 and 1976, Artur Schnabel (1887-1982) commanded 1 percent of the gross takings at his concerts.

## Highest-Paid Singers

Of great fortunes earned by singers, the highest on record are those of Enrico Caruso (1873-1921), the Italian tenor, whose estate was worth \$9 million, and the Italian-Spanish coloratura soprano Amelita Galli-Curci (1889-1963), who received about \$3 million. In 1850, \$5 to \$653 was paid for a single seat at the concerts given in the US by Johanna ("Jenny") Maria Lind (1820-87), later Mrs Otto Goldschmidt, the "Swedish Nightingale." She had a range of nearly three octaves, of which the middle register is still regarded as unrivaled.

The tenor "Count" John Francis McCormack (1884-1945) of Ireland gave 10 concerts to capacity audiences in a single season in Carnegie Hall, NYC.

David Bowie drew a fee of \$1.5 million for a single show at the US Festival in Glen Helen Regional Park, San Bernardino County, Calif on May 26, 1983. The 4-man Van Halen rock singing group attracted a matching fee.

Surpassing the \$81 million grossed by Michael Jackson's "Victory Tour" July-Dec 1984, is the tour which Bruce Springsteen made beginning in Apr 1984 that grossed an estimated \$117 million. It ended with 4 nights in the LA Coliseum (capacity 85,000) when \$5,800,000 was grossed.

## Longest and Shortest Operas

The longest of commonly performed operas is *Die Meistersinger*



ENCORE! Operatic singer, Placido Domingo, received 83 curtain calls and 1½ hours of applause in Vienna on singing the lead in "La Boheme" in 1983.

von Nürnberg by Wilhelm Richard Wagner (1813–83) of Germany normal uncut performance of this opera as performed by the Sadl Wells company between Aug 24 and Sept 19, 1968 entailed 5 hour min of music. *The Heretics* by Gabriel von Wayditch, a Hungarian American, is orchestrated for 110 pieces and lasts 8½ hours.

The shortest published was *Deliverance of Theseus* by Da Milhaud (b Sept 4, 1892) first performed in 1928, which lasts 6 min 27 sec.

### Longest Aria

The longest single aria, in the sense of an operatic solo, Brünnhilde's immolation scene in Wagner's *Götterdämmerung*, well-known recording has been precisely timed at 14 min 46 sec.

### Longest Operatic Encore

The longest listed in the *Concise Oxford Dictionary of Opera* was the entire opera of Cimarosa's called *Il Matrimonio Segreto* at premiere in 1792. This was at the command of Austro-Hungarian Emperor Leopold II (1790–92).

It was reported on July 5, 1983 that Placido Domingo received curtain calls and was applauded for 1 hour 30 min after singing lead in Puccini's *La Boheme* at the State Opera House in Vienna, Austria.

### Opera Houses

The largest is the Metropolitan Opera House, Lincoln Center, NY, completed in Sept 1966, at a cost of \$45,700,000. It has a capacity 3,800 seats in an auditorium 451 ft deep. The stage is 234 ft in width.

and 146 ft deep. The tallest opera house is one housed in a 42-story building on Wacker Drive in Chicago.

The Teatro della Scala (La Scala) in Milan, Italy, shares with the Bolshoi Theatre in Moscow the distinction of having the greatest number of tiers. Each has 6 with the topmost being nicknamed the *Galiorka* by Russians.

## Youngest and Oldest Opera Singers

The youngest opera singer in the world has been Jeanette Gloria (Ginetta) La Bianca, (b Buffalo, NY May 12, 1934) who made her official debut as Rosina in *The Barber of Seville* at the Teatro dell'Opera, Rome, May 8, 1950, aged 15 years 361 days, but who appeared as Gilda in *Rigoletto* at Velletri, Italy, 45 days earlier. Miss La Bianca was taught by Lucia Carlino and managed by Angelo Carlino.

The tenor Giovanni Martinelli sang Emperor Altoum in *Turandot* in Seattle, Wash Feb 4, 1967, when aged 81.

Danshi Toyotake (b Aug 1, 1891) has been singing *Gidayu* for 86 years.

## Oldest Bell

The oldest bell is the tintinnabulum found in the Babylonian Palace of Nimrod in 1849 by Mr (later Sir) Austen Henry Layard (1817-94). It dates from c. 1100 BC. The oldest known tower bell is one in Pisa, Italy dated MCVI (1106).

## Largest Carillon

The largest carillon (minimum of 23 bells) is the Laura Spelman Rockefeller Memorial carillon in Riverside Church, NYC. It has 74 bells weighing 112 tons. The bourdon, giving the note lower C, weighs 40,926 lb. This 20.5-ton bell, cast in England, with a diameter of 10 ft 2 in, is the largest *tuned* bell.

## Heaviest Bell

The heaviest bell is the Tsar Kolokol, cast on Nov 25, 1735 in Moscow. It weighs 216 tons, measures 19 ft 4¼ in in diameter, is 19 ft 3 in high, and its greatest thickness is 24 in. The bell is cracked, and a fragment, weighing about 12 tons, is broken from it. The bell has stood, unring, on a platform in the Kremlin, in Moscow, since 1836.

The heaviest bell in use is the Mingun bell, weighing 101.4 tons, in Mandalay, Burma, which is struck by a teak boom from the outside. It has a diameter of 16 ft 8½ in at the lip.

The heaviest swinging bell in the world is the Petersglocke in the southwest tower of Cologne Cathedral, Germany, cast in 1923, with a diameter of 11 ft 1¾ in, weighing 28.4 tons.

## Oldest Songs

The oldest known song is the *shaduf* chant, which has been sung since time immemorial by irrigation workers on the man-powered pivoted-rod bucket raisers of the Nile water mills (or *saqiya*s) in Egypt. The oldest known harmonized music is the English song *Sumer is icumen in* which dates from c. 1240.



## Top Songs of All Time

The most frequently sung songs in English are *Happy Birthday to You* (based on the original *Good Morning to All*, by Mildred and Patty S. Hill of New York, published in 1935 and in copyright until 2010), *For He's a Jolly Good Fellow* (originally the French *Malbrouk*) known at least as early as 1781, and *Auld Lang Syne* (originally the Strathspey *I fee'd a Lad at Michaelmas*), some words of which were written by Robert Burns (1759–96). *Happy Birthday* was sung in space by the Apollo IX astronauts March 8, 1969.

## Top Selling Sheet Music

Sales of three non-copyright pieces are known to have exceeded 20 million copies, namely *The Old Folks at Home* by Stephen Foster (1855), *Listen to the Mocking Bird* (1855) and *The Blue Danube* (1867). Of copyright material, the two top-sellers are *Let Me Call Your Sweetheart* (1910, by Whitson and Friedman) and *Till We Meet Again* (1918, by Egan and Whiting), each with some 6 million by 1967. Other huge sellers have been *St Louis Blues*, *Stardust* and *Tea for Two*.

## Most Successful Song Writers

The songwriters responsible for the most No. 1 singles are John Lennon and Paul McCartney. In America McCartney is credited as writer on 32 No. 1 hits, 6 more than Lennon. In Britain Lennon authored 27 number one's, McCartney 26. In both countries 23 of their No. 1's were jointly written. After Lennon/McCartney the most successful songwriters in terms of No. 1 hits in Britain are Benny Andersson and Bjorn Ulvaeus of the group ABBA, who have written 10. In America, Barry Gibb of the Bee Gees has written or co-written 16 No. 1's. The most successful female songwriter in America is Carole King with 8 No. 1's—in Britain it is Madonna with 4.

## National Anthems

The oldest national anthem is the *Kimigayo* of Japan, in which the words date from the 9th century. The anthem of Greece constitutes the first four verses of the Solomos poem, which has 158 verses. The shortest anthems are those of Japan, Jordan and San Marino, each with only four lines. Of the 23 wordless national anthems, the oldest is that of Spain, dating from 1770.

## Longest Rendering of an Anthem

"God Save the King" was played non-stop 16 or 17 times by a German military band on the platform of Rathenau Railway Station, Brandenburg, on the morning of Feb 9, 1909. The reason was that King Edward VII was struggling inside the train to get into his German Field-Marshal uniform before he could emerge.

## Longest and Shortest Hymns

The longest hymn is *Hora novissima tempora pessima sunt; vigilemus* by Bernard of Cluny (12th century), which runs to 2,966 lines. In English the longest is *The Sands of Time Are Sinking* by Mrs Anne Ross Cousin, née Cundell (1824–1906), which is in full 152

lines, though only 32 lines in the Methodist Hymn Book. The shortest hymn is the single verse in Long Metre *Be Present at Our Table, Lord*, anonymous but attributed to "J. Leland."

## Most Prolific Hymnists

Mrs Frances Jane Van Alstyne, *née* Crosby (US) (1820–1915), wrote more than 8,500 hymns although she had been blinded at the age of 6 weeks. She is reputed to have knocked off one hymn in 15 minutes. Charles Wesley (1707–88) wrote about 6,000 hymns. In the seventh (1950) edition of *Hymns Ancient and Modern* the works of John Mason Neale (1818–66) appear 56 times.

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## 5. THEATRE

Theatre as we know it has its origins in Greek drama performed in honor of a god, usually Dionysus. The earliest amphitheatres date from the 5th century bc. The first stone-built theatre in Rome (erected in 55 bc) could accommodate 40,000 spectators.

### Oldest Theatre

The oldest indoor theatre is the Teatro Olimpico in Vicenza, Italy. Designed in the Roman style by Andrea di Pietro, *alias* Palladio (1508–80), it was begun three months before his death and finished in 1582 by his pupil Vincenzo Scamozzi (1552–1616).

### Largest and Smallest Theatres

The largest building used for theatre is the National People's Congress Building (*Ren min da hui tang*) on the west side of Tian An Men Square, Peking, China. It was completed in 1959 and covers an area of 12.9 acres. The theatre seats 10,000 and is only occasionally used as such, as in 1964 for the play "The East Is Red."

The highest capacity purpose-built theatre is the Perth Entertainment Centre in Western Australia, completed at a cost in Australian dollars of \$8.3 million in Nov 1976, with a capacity of 8,003 seats. The stage area is 12,000 sq ft.

The smallest regularly operated professional theatre is the Piccolo in Juliusstrasse, Hamburg, W Germany. It was founded in 1970 and has a maximum capacity of 30 seats.

### Largest Stage

The largest stage is in the Ziegfeld Room, Reno, Nev with a 176-ft passerelle, 3 main elevators capable of lifting 1,200 show girls, two 62½-ft-circumference turntables and 800 spotlights.

### Largest Amphitheatre

The largest amphitheatre ever built is the Flavian amphitheatre or Colosseum of Rome, Italy, completed in 80 ad. Covering 5 acres and with a capacity of 87,000, it has a maximum length of 612 ft and maximum width of 515 ft.

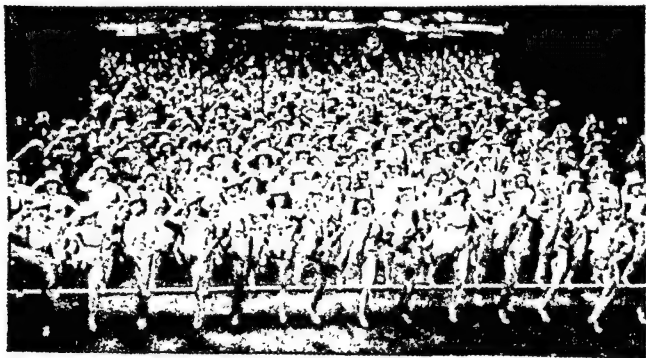
## Longest Runs

The longest continuous run of any show is of *The Mousetrap* by Agatha Christie (Lady Mallowan) (1890–1976). This thriller opened at the Ambassadors Theatre (capacity 453), London, Nov 25, 1952 and moved after 8,862 performances "down the road" to St Martin's Theatre, London, March 25, 1974. The 30th Anniversary performance on Nov 25, 1982 was the 12,481st and the total in Apr 1987 is 14,250.

The Vicksburg Theatre Guild of Vicksburg, Miss., has been playing the melodrama *Gold in the Hills* by J. Frank Davis discontinuously but every season since 1936.

The greatest number of performances of any theatrical presentation is 47,250 in the case of *The Golden Horseshoe Revue*—a show staged at Disneyland Park, Anaheim, Calif. The show was started on July 16, 1955, closed on Oct 12, 1986, and was seen by 16 million people. The three main performers were Dick Hardwick (formerly it was Wally Boag), Fulton Burley, and Betty Taylor, who played as many as five houses a day in a routine lasting 45 min.

The long-run record for a "Broadway" show of any type was set on Sept 29, 1983, when *A Chorus Line* had its 3,389th performance at the Shubert Theatre. It is estimated that 23 million people saw it since it opened on July 25, 1975, and paid \$260 million to the box office.



**LONGEST RUN:** For the finale of performance No. 3,389 of "A Chorus Line" on Sept 29, 1983 which broke the record for a Broadway show, 332 players who had appeared during the run in all roles were invited and appeared on stage. In mid-1986, the play was still running, and 23 million people had seen it on stage. (Photo © 1983 Martha Suepe, Courtesy of Merle Debusky & Associates)

**803 ROLES IN 20,075 PERFORMANCES:** In the Kabuki theatre in Japan, Ranzaburo Nakamura, now 77, has appeared since 1926.



The Broadway record for the longest run of a drama (rather than a musical) is 3,224 performances (including benefits, etc.) by *Life With Father*, written by Howard Lindsay and Russel Crouse. The play opened at the Empire Theatre on Nov 8, 1939, and closed July 12, 1947, at the Alvin Theatre.

The longest-running musical is the off-Broadway show *The Fantasticks* by Tom Jones and Harvey Schmidt which reached its 10,864th performance on June 8, 1986, after 26 years. *The Fantasticks* was scheduled to close on that date, but the closing announcement stirred up so much new demand for tickets, that the musical play has had to stay open indefinitely. The show has set a record by playing 11,240 performances to May 3, 1987, when it started its 28th year in the same theatre, the Sullivan Street Playhouse, Greenwich Village, NYC. This longest run has made Jules Field, associate producer of the show, also the world's most successful theatre owner.

### One-Man Shows

The longest run of one-man shows is 849 by Victor Borge (b Copenhagen Jan 3, 1909) in his *Comedy in Music* from Oct 2, 1953, to Jan 21, 1956, at the Golden Theater, NYC.

The world aggregate record for one-man shows is 1,700 performances of *Brief Lives* by Roy Dotrice (b Guernsey, England, May 26, 1923) including 400 straight at the Mayfair Theatre, London, ending July 20, 1974. He was on stage for more than 2½ hours per performance of this 17th century monologue, and required 3 hours for makeup and 1 hour for removal, thus aggregating 40 weeks in the chair as well.

### Most Durable Leading Actors

Ranzaburo Nakamura, 77, of Tokyo, Japan, has played 803 leading roles on stage in Kabuki theatre, Nov 1926–Sept 1985, an estimated total of 20,075 performances.

Dame Anna Neagle (1904–86) played the lead in *Charlie Girl* at the Adelphi Theatre, London, England, for 2,062 of 2,202 performances between Dec 15, 1965 and March 27, 1971. She played the same rôle a further 327 times in 327 performances in Australasia.

Marian Seldes did not miss a single performance in Ira Levin's long-running Broadway hit *Deathtrap* from the show's opening on Feb 26, 1978, to its close on June 27, 1982. She portrayed the character Myra Bruhl in 1,793 consecutive performances.

### Youngest Broadway Producer

Margo Feiden (Margo Eden) (b NY, Dec 2, 1944) produced the musical *Peter Pan*, which opened Apr 3, 1961, when she was 16 years 5 months old. She wrote *Out Brief Candle*, which opened Aug 12, 1962, and is now a leading art dealer.

### Longest Play

The longest recorded theatrical production has been "The Facing Life" staged in the Tom Mann Theatre, Sydney, Australia on Mar 17–18, 1984 with a cast of 10. The production required 19½ hours (21 hours with intermissions).

## Shakespeare

The longest play is *Hamlet*, with 4,042 lines and 29,551 words, 1,242 words longer than *Richard III*. Of Shakespeare's 1,277 speaking parts, the longest is the title role in *Hamlet* with 11,610 words.

## Most Ardent Theatregoer

Dr H. Howard Hughes (b 1902) of Fort Worth, Tex, professor emeritus at Texas Wesleyan University, attended 5,512 shows in the period 1956–1983.

Edward Sutro (1900–78) in England saw 3,000 first-night productions from 1916 to 1956, and possibly more than 5,000 in his 60 years of theatre-going.

## Shortest Criticism

The shortest dramatic criticism in theatrical history was that attributed to Wolcott Gibbs (1902–58), writing about the farce *Wham!* He wrote the single word "Ouch!"

## Highest-Paid Entertainers

The highest-paid entertainer, Dolly Parton, earns \$400,000 for a live concert. Johnny Carson's fee for the non-televised Sears Roebuck Centenary in Oct 1984 was set at \$1 million.

## Longest Chorus Line

The longest chorus line in theatre history was up to 120 in some of the early *Ziegfeld Follies*. In the finale of *A Chorus Line* on the night of Sept 29, 1983, when it broke the record as the longest-running Broadway show ever, 332 top-hatted "strutters" appeared on the stage. The Rockettes at Radio City Music Hall, NYC, regularly have 6 precision-timed dancers.

*No off-stage record claims will be considered.*

## Shortest Runs

The shortest run on record was that of *The Intimate Revue* at the Duchess Theatre, London, March 11, 1930. Anything which could go wrong did. With scene changes taking up to 20 minutes apiece, the management scrapped seven scenes to get the finale on before midnight. The run was described as "half a performance."

A number of Broadway productions open and close the same night. There were 11 such "turkeys" in the 1978–79 season.

The largest loss incurred was probably the estimated \$4 million lost in *A Doll's Life*, Sept 23–26, 1982.

## Most rôles

The greatest recorded number of theatrical, film and television rôles is 3,372 from 1951 to June 15, 1987 by Jan Leighton (US).

## Fashion Shows

The most prolific producer and most durable commentator of fashion shows is Adalene Ross of San Francisco, with over 4,702 in both categories to mid-1986.

## ce Shows

Holiday on Ice Productions Inc., founded by Morris Chalfen in 1945, stages the world's most costly live entertainment with up to seven productions playing simultaneously in several of 75 countries drawing 20 million spectators paying \$40 million in a year. The total number of skaters and other personnel exceeds 900.

## Wrestling Shows

The wrestler who has received most for a single bout has been Kanii Antonio Inoki of Japan on June 26, 1976. He received \$2 million for the wrestler vs. boxer bout against Muhammad Ali in the Budokan Arena, Tokyo, Japan which ended in a "draw."

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## 6. RADIO BROADCASTING

### Earliest Broadcast

The first advertised broadcast was made on Dec 24, 1906, by Canadian-born Prof Reginald Aubrey Fessenden (1868-1932) from the 420-ft mast of the National Electric Signaling Company at Brant Rock, Mass. The transmission included Handel's *Largo*. Fessenden had achieved the broadcast of speech as early as Nov 1900, but this was highly distorted.

### Transatlantic Transmissions

The earliest claims to have received wireless signals (the letter S in Morse Code) across the Atlantic were received by Guglielmo Marconi (1874-1937), George Stephen Kemp and Percy Paget from a 10-kilowatt station at Poldhu, Cornwall, England, at Signal Hill, St John's, Newfoundland, Canada, at 12:30 p.m. Dec 12, 1901. Human speech was first heard across the Atlantic in Nov 1915, when a transmission from the US Navy station at Arlington, Va, was received by US radio-telephone engineers up on the Eiffel Tower, Paris.

### Earliest Radio-Microphone

The first radio-microphone, which was in essence also the first "bug," was devised by Reg Moores (GB) in 1947, and first used on 76 MHz in the ice show *Aladdin* at Brighton Sports Stadium, England, in Sept 1949.

### Smallest Set

The Toshiba AM-FM RP = 1070 with built-in loudspeaker measures  $3.5 \times 2.1 \times 0.05$  in, and with battery weighs  $2\frac{1}{2}$  oz.

### Most Heard Broadcaster

Larry King has broadcast on network for  $27\frac{1}{2}$  hours a week since Jan 30, 1978 from Wash DC on Mutual Broadcasting Systems to all 50 states (now on 272 stations).

## Highest Radio Listener Response

The highest recorded response to a radio show occurred Nov 27, 1974, when on a 5-hour talk show on WCAU, Philadelphia, Howard Sheldon, the astrologist, registered a total of 388,299 calls on the "Bill Corsair Show."

## Topmost Prize on Radio

Mary Buchanan, 15, on WKRQ, Cincinnati, won a prize of \$25,000 a year for 40 years (\$1 million) on Nov 21, 1980.

## Most Assiduous Radio Ham

Richard C. Spenceley (d July 30, 1982) of KV4AA at St. Thomas, US Virgin Islands built his contacts (QSO's) to a record level of 48,100 in 365 days in 1978.

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## 7. TELEVISION

The invention of television, the instantaneous viewing of distant objects by electrical transmissions, was not an act but a process of successive and interdependent discoveries. The first commercial cathode-ray tube was introduced in 1897 by Karl Ferdinand Braun (1850-1918), but was not linked to "electric vision" until 1907 by Boris Rosing of Russia in St Petersburg (now Leningrad). A. A. Campbell Swinton (GB 1863-1930) published the fundamentals of television transmission June 18, 1908 in a brief letter to *Nature* entitled "Distant Electric Vision." The earliest public demonstration of television was given on Jan 27, 1926, by John Logie Baird (1888-1946) of Scotland, using a development of the mechanical scanning system suggested by Paul Gottlieb Nipkov (1860-1940) on Jan 6, 1884. He had achieved the transmission of a Maltese Cross over 10 ft in Hastings, East Sussex, England, in Feb 1924, and the first facial image (of William Taynton, 15) on Oct 30, 1925. Taynton had to be bribed with 2 shillings sixpence. A patent application for the Iconoscope had been filed Dec 29, 1923, by Dr Vladimir Kosma Zworykin (born in Russia 1889, became a US citizen in 1924, d 1982). It was not issued until Dec 20, 1938.

Kenjiro Takayanagi (b Jan 20, 1899) succeeded in transmitting a 40-line electronic picture on Dec 25, 1926 with a Braun cathode-ray tube and a Nipkow disc at Hamamatsu Technical College, Japan. Baird launched his first television "service" via a BBC transmitter on Sept 30, 1929 and marketed the first sets, The Baird Televisions, in May 1930. Public transmissions on 30 lines were made from Aug 22, 1932 until Sept 11, 1935.

## Video Tape Recording

Alexander M. Poniatoff first demonstrated video tape recording, known as Ampex (his initials plus "ex" for excellence) in 1956.

The earliest demonstration of a home video recorder was on June 24, 1963, at the BBC News Studio at Alexandra Palace, London.

of the Telcan developed by Norman Rutherford and Michael Turner of the Nottingham Electronic Valve Co.

In 1986, some 1,044 million tapes were rented from more than 26,000 video rental stores in the US, compared with 26 million tapes in 1980, according to Tim Baskerville, the publisher of Video Marketing Newsletter in LA.

The best-selling tape has been *Beverly Hills Cop*.

### earliest Service

The first high-definition (i.e. 405 lines) television broadcasting service was opened from Alexandra Palace, London, Nov 2, 1936, when there were about 100 sets in the UK. A television station in Berlin, Germany, began low-definition (180 line) transmission March 2, 1935. The transmitter burned out in Aug 1935.

### reatest TV Audience

It has been estimated that nearly one-third of the world's population (1.6 billion people) watched the "Live Aid" telethon concerts on July 3-14, 1985 to raise funds for Ethiopia, including stations hooked up by a record 12 satellites. This was the most successful appeal ever made on TV.

The greatest estimated number of viewers worldwide for a pre-scheduled event is 2,500 million for the live and recorded transmissions of the XXIIIrd Olympic Games in LA July 27-Aug 13, 1984. ABC-TV aired 187½ hours on 56 cameras.

The serial which attracted the highest viewership was the final first-run episode of M\*A\*S\*H on Feb 28, 1983, on CBS-TV which drew an estimated total audience of 125 million people in the US, with a 60.3 rating and a 77% share of the viewing audience.

### Television Viewing

The 1986 projection for the US was 364 sets per 1,000 households, with 40.38 million having cable TV. The number of homes with color sets reached 80,100,000 (91%) by Jan 1986.

In 1986, there were an estimated 500 million homes with TV sets in the world, of which 85.9 million were in the US, with 8,250 TV stations worldwide, of which 1,194 were in the US.

The National Coalition on TV Violence published an estimate in June 1985 that by his 16th birthday the average US child will have seen 50,000 TV murders or attempted murders and 200,000 acts of violence. Between ages 2 and 11, the average viewing time is 28 hours per week.

Iceland has a TV-free day on Thursday to reduce disruption of family life. Otherwise transmissions are normally limited to between 8 and 11 p.m. July 1982 was declared a TV-free month. Upper Volta had only one set for each 1,000 inhabitants by 1974.



## Transatlantic Transmission

The earliest transatlantic satellite transmission was achieved at 1 a.m. July 11, 1962, via the active satellite *Telstar I* from Andover, Maine, to Fleurbaey Station, France. The picture was of Frederick R. Kappell, chairman of the American Telephone and Telegraph Company, which owned the satellite. The first "live" broadcast was made July 23, 1962, and the first woman to appear was the haute couturière *Corinne Synder*, director of *Balmain*, Paris, the next day.

On Feb 9, 1962 the image of J. L. Baird (see above) and of a Mrs Howe was transmitted from Station 2 KZ at Guildford, Surrey, Eng to Station 2 CVI, Hartsdale, NY.

## Highest Definition

A TV system with a 1,125-line definition was demonstrated by NHK (*Nippon Hoso Kyokai*) built by Hitachi and Sony at Brighton, Sussex, Eng on Sept 19, 1962.

## Largest Contracts

The highest paid television performer currently is Bill Cosby, who was reported in July 1986 to have earned \$10.5 million in 12 months for his TV shows, concerts, albums, and endorsements.

The highest rate for any TV contract ever signed was one for \$7 million for 7 hours of transmission with NBC by Marie Osmond, announced on Mar 9, 1981. This includes talent and production costs.

John William Carson (b Oct 23, 1925), host of *The Tonight Show*, has a contract reportedly calling for annual payment of \$5 million for the one-hour show he hosts 4 times weekly.

The highest-paid current affairs or news performer is Dan Rather of CBS who reportedly signed an \$8 million contract for 5 years from 1982.

## Commercial Payments

The highest fee paid for a 30-second commercial is \$1.5 million paid by Japanese TV in Dec 1985 to Boy George for promoting gin.

## Most Expensive Production

*The Winds of War*, a 7-part Paramount World War II saga, aired by ABC in 1983 cost \$42 million over 14 months of shooting. Its final episode had a rating of 41 and a 56% share (of the sets turned on).

## Longest Program

The longest pre-scheduled telecast on record was one of 163 hours 18 min by GTV 9 of Melbourne, Australia, covering the Apollo XI moon mission July 19-26, 1969.

The longest continuous TV transmission under a single director was 25 hours exactly, by host Deb Williams, producer Tom McLaughlin, and director Rick Ray in Portland, Ore, over Rogers Cable TV.

At the end, Miss Williams was carried off the set on a stretcher and placed in a waiting ambulance.

**HIGHEST PAID TV PERFORMER:** Bill Cosby (seen here with his TV wife, Phyllicia Ayers-Allen) earned \$10.5 million from TV and his other entertainment activities in 1986. (Rex features) ➤



**HIGHEST PAY** for a single taping of TV was \$2 million to singer Kenny Rogers in Feb 1983 by HBO.

## Most Durable TV Shows and Performances

The most durable show is NBC's *Meet the Press*, first transmitted Nov 6, 1947 and weekly since Sept 12, 1948. It was originated by Lawrence E. Spivak, who until 1975 appeared weekly as either moderator or panel member.

Joe Franklin started in 1951 on ABC-TV NY with his show and in 1965 switched to WOR-TV. He hosted his 22,304th broadcast on July 20, 1987 after a total of 36 consecutive years.

Over a period of 42 years, Hugh Downs appeared on camera on network television 10,000 hours to Jan 1, 1987.

The longest-running musical show on national TV is Dick Clark's "American Bandstand," which reached its 35th anniversary on Sept 15, 1987.

## Highest TV Advertising Rates

NBC announced that its rate for advertising on the 1987 Super Bowl XXI broadcast was \$600,000 per half minute.

## Largest and Smallest Sets

The largest is the Sony Jumbo Tron color TV screen at the Tsukuba International Exposition '85 near Tokyo, in Mar 1985, which measured 80 ft × 150 ft.

The Seiko TV-Wrist Watch launched on Dec 23, 1982 in Japan has a 1.2 in screen and weighs only 2.8 oz. Together with the receiver unit and the headphone set the entire black-and-white system, costing 108,000 yen (then \$463), weighs only 11.3 oz. The smallest single-piece TV set is the Casio-Keisanki TV-10 weighing 11.9 oz and 2.7 in screen launched in Tokyo in July 1983.

Tek



**35 YEARS ON THE AIR:** The longest-running musical TV show is "American Bandstand," hosted by Dick Clark, who here in an early year. It was the first national TV show devoted exclusively to rock 'n' roll, and more than 600,000 teenagers have danced before these cameras.

ROUND DOG - Dave Pickett  
 NANA SUNSET - H. M. M. M.  
 E BOP A TULA - Gene Vincent  
 ASHLEY LOOK - Sonny Terry  
 IT BE THE SPECIALTIES - L. L. Cool  
 JAMES H. THE JAZZ - L. L. Cool  
 RAY - RAYMOND - Ray Charles  
 JAMES H. THE JAZZ - L. L. Cool  
 RAY - RAYMOND - Ray Charles  
 JAMES H. THE JAZZ - L. L. Cool  
 RAY - RAYMOND - Ray Charles



**MOST PROLIFIC PRODUCER:** Aaron Spelling, producer of "Dynasty," and many other TV shows, has put on 1,770 TV episodes since 1956. To view all of his produced work would take a full 3 1/2 months. (Rex Features)

The smallest color TV set is the liquid crystal display (LCD) Japanese Epson launched in 1985 with dimensions of  $3 \times 6\frac{3}{4} \times 1\frac{1}{8}$  in, weighing, with batteries and its 52,800 crystals, only 16 oz.

### Most Prolific Producer

The most prolific TV producer is Aaron Spelling (b 1928) who, in the years from 1956 to mid-1987, produced more than 1,770 episodes totaling 2,250 hours of air time as well as 207½ hours of movies and 8 feature films. The total hours equals 13.7 million feet of film, which, if projected 24 hours a day, would take over 3½ months to screen.

### Most Prolific Scriptwriter

The most prolific television writer is the Rt. Hon. Lord Willis (b Jan 13, 1918), known as Ted Willis, who in the period 1949–86 has created 32 series, 29 stage plays, and 33 feature films. He had 24 plays produced. His total output since 1942 can be estimated at 18,250,000 words.

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## 8. MOTION PICTURES

The earliest motion pictures ever taken were by Louis Aimé Augustin Le Prince (1842?–90). He reportedly achieved dim moving outlines on a whitewashed wall at the Institute for the Deaf, Washington Heights, NYC, as early as 1885–87. The earliest surviving film (2½-in-wide paper roll) is from his camera patented in Britain taken in early Oct 1888 of the garden of his father-in-law Joseph Whitley in Rounday, Leeds, W Yorkshire, at 10 to 12 frames per sec.

The first commercial presentation of motion pictures was at Holland Bros Kinetoscope Parlor at 1155 Broadway, NYC, on Apr 14, 1894. Viewers could see 5 films for 25 cents or 10 for 50 cents from a double row of Kinetoscopes developed by William Kennedy Laurie Dickson (1860–1935), assistant to Thomas Alva Edison (1847–1931).

The earliest publicly presented film on a screen was *La Sortie des Ouvriers de l'Usine Lumière*, probably shot in Aug or Sept 1894 in Lyon, France. It was exhibited at 44 Rue de Rennes, Paris, on Mar 22, 1895, by the Lumière brothers, Auguste Marie Louis Nicholas (1862–1954) and Louis Jean (1864–1948).

### Earliest Sound Movie ("Talkie")

The earliest sound-on-film motion picture was achieved by Eugene Augustin Lauste (1857–1935) who patented his process Aug 11, 1906 and produced a workable system using a string galvanometer in 1910 at Benedict Road, Stockwell, London.

The earliest public presentation of sound on film was by the Tri-ergon process at the Alhambra cinema, Berlin, Germany on Sept 17, 1922.

Dr Lee de Forest (1873–1961) was responsible for the screening in the US of the first sound picture before a paying audience at the Rialto Theatre, NYC, Apr 15, 1923. The first all-talking picture was Warner Bros' *Lights of New York*, shown at the Strand Theatre, NYC, July 6, 1928.



## Movie-Going

The Chinese Ministry of Culture reported in Sept 1984 that there were 27,000 million cinema attendances in 1983—or nearly 27 per person per year. The Soviet Union claims to have the most movie theatres in the world, with 163,400 in 1974, but this includes buildings merely equipped with even 16-mm projectors. The US has 16,965 actual movie theatres (1979).

San Marino has more seats for watching films per total population than any other country, with one cinema for each 3,190 inhabitants. The least number are in Saudi Arabia (population 8.4 million) which has no movie theatres. Ascension Island has 733 cinema seats for a population of 971.

## Longest Film

The longest film ever premiered was the 48-hour-long *The Longest Most Meaningless Movie in the World* in 1970. It was British-made and later cut to 90 min.



**HIGHEST BOX OFFICE GROSS:** "E.T.: The Extra-Terrestrial" set the record with \$322 million. The little charmer is seen here with his producer Steven Spielberg. (Courtesy Universal Pictures and Mr Spielberg)

**HIGHEST PAID STUNT MAN:** Dar Robinson received \$100,000 for a jump from 1,100 ft up with his parachute not opening until 300 ft from the ground. He died at age 39 in 1986 doing a relatively "easy" motorcycling stunt. (Photo by David A Boehm)



## Longest-Running Film

*One Flew Over the Cuckoo's Nest* played for over 11 years continuously (Feb 26, 1976-87) in Stockholm, Sweden.

## Highest Earnings by an Actor

The highest rate of pay in cinema history was \$12 million paid to Sylvester Stallone (b NYC, July 6, 1946) for *Rocky IV*, besides the as-yet-uncomputed share of the box office receipts. This may well be exceeded by his salary plus profit share for *Rambo*, which Hollywood sources predict will be \$20 million.

The highest paid actress in 1985 was Meryl Streep (b Summit, NJ, 1949) with \$3 million for her role in *Out of Africa*.

## Most Portrayed Character

The character most frequently recurring on the screen is Sherlock Holmes, created by Sir Arthur Conan Doyle (1859-1930). Sixty-seven actors portrayed Holmes in 186 films between 1900 and 1984.

## Largest Loss

It was reported on Nov 20, 1980 that United Artists had withdrawn Michael Cimino's production of *Heaven's Gate* because its total cost including distribution and studio overheads had reached \$44,000,000.

## Stuntman Earnings

Dar Robinson was paid \$100,000 for the 1,100-ft-high leap he made from the CN Tower in Toronto in Nov 1979 for *High Point*. His parachute opened at only 300 ft above the ground. He died in a motorcycle stunt during movie-making in Page, Ariz, on Nov 21, 1986, aged 39.

## Most Films Seen

Albert E. Van Schmus (b 1921) saw 16,945 films in 32 years (1949-1982) as a rater for Motion Picture Association of America Inc.

Sal Piro of Greenwich Village, NYC, has seen the *Rocky Horror* movie 873 times during the 11 years it has been showing.

## Most Violent Movie

A study on the portrayal of violence showed the worst film on record was *Red Dawn*, released in the US in 1984, with acts of violence occurring at the rate of 134 per hour or 2.23 per min.

## Most Versatile Performer

Robert Duvall who has appeared in 33 films in the last 20 years including some major hits (and has also appeared on Broadway) was called most versatile by the *New York Times*. He won his first Oscar for "best actor" in 1984.

Competing with him for the title is Robert De Niro, who has been a street kid, psycho, soldier, ball player, mobster, musician, boxer and buffoon in movies.

## Most Oscars

Walter (Walt) Elias Disney (1901-66) won more "Oscars"—the awards of the Academy of Motion Picture Arts and Sciences, instituted on May 16, 1929, for 1927-28—than any other person. The physical count comprises 20 statuettes and 12 other plaques and certificates, including posthumous awards.

The only performer to win four Oscars for her starring rôles has been Katharine Hepburn (b Hartford, Conn, Nov 9, 1909), in *Morning Glory* (1933), *Guess Who's Coming to Dinner* (1967), *The Lion in Winter* (1968) and *On Golden Pond* (1981). She was nominated 12 times.

Only 4 actors have won 2 Oscars in starring roles—Fredric March in 1932, 1946; Spencer Tracy in 1937, 1938; Gary Cooper in 1941, 1952; and Marlon Brando in 1954, 1972.

Edith Head (d. 1981) won 8 individual awards for costume design.

The youngest person ever to win an Oscar was Shirley Temple (b Apr 23, 1928) with her 1934 honorary award at age 5, and the oldest is George Burns (b Jan 20, 1896) at age 80 for *The Sunshine Boys*.

The film with most awards has been *Ben Hur* (1959) with 11. The film with the highest number of nominations was *All About Eve* (1950) with 14. It won 6.

Oscars are said to have been named after Oscar Pierce of Texas. When the figurines were first delivered to the executive offices of the Academy of Motion Picture Arts and Sciences, the executive secretary exclaimed, "Why, they look just like my Uncle Oscar." And the name stuck.

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## 9. RECORDED SOUND

The phonograph was first conceived by Charles Cros (1842-88), a French poet and scientist who described his idea in sealed papers deposited in the French Academy of Sciences Apr 30, 1877. The first practical device was realized by Thomas Alva Edison (1847-1931), who gained his first patent Feb 19, 1878 for a wax cylinder machine constructed by his mechanic, John Kruesi. It was first demonstrated on Dec 7, 1877, and patented on Feb 19, 1878. The horizontal disc was introduced by Emile Berliner (1851-1929).

### Earliest Recordings

The earliest birthdate of anyone whose voice is recorded is that of Lajos Kossuth (b Sept 9, 1802), former governor of Hungary, whose speech in Turin, Italy, on Sept 20, 1890 is preserved on a wax cylinder in the National Library in Budapest. The earliest born singer was Peter Schram, the Danish baritone of whom a cylinder was made in the role of Don Giovanni on his 70th birthday, Sept 5, 1929.

### Oldest Records

The oldest records in the BBC library are white wax cylinders dating from 1888. The earliest commercial disc recording was manufactured



in 1895. The BBC library, the world's largest, contains over 1 million records, including 5,250 with no known matrix.

The earliest jazz record made was *Indiana* and *The Dark Town Strutters Ball*, recorded for the Columbia label in NYC on or about Jan 30, 1917 by the Original Dixieland Jazz Band, led by Dominick (Nick) James La Rocca (1889–1961). This was released May 31, 1917. The first jazz record to be released was the ODJB's *Livery Stable Blues* (recorded Feb 24), backed by *The Dixie Jass Band One-Step* (recorded Feb 26), released by Victor on March 7, 1917.

### Smallest Record

The smallest functional record is one 1½ in in diameter of "God Save the King" of which 250 were made by HMV Record Co in 1924.

### Tape Recordings

Magnetic recording was invented by Valdemar Poulsen (1869–1942) of Denmark with his steel wire Telegraphone in 1898 (US Patent No. 661619). Fritz Pfleumer (German patent 500900) introduced tape in 1928. Plastic tapes were devised by BASF of Germany in 1932–35, but were not marketed until 1950 by Recording Associates of NYC. In Apr 1983, Olympic Optical Industry Co of Japan marketed a micro-cassette recorder 4.2 in × 2 in × 0.55 in weighing 4.4 oz.

### Most Successful Solo Recording Artists

On June 9, 1960 the Hollywood Chamber of Commerce presented Harry Lillis (*alias* Bing) Crosby, Jr (1904–77) with a platinum disc to commemorate the alleged sale of 200 million from 2,600 singles and 125 albums he had recorded. On Sept 15, 1970 he received a second platinum disc when Decca Records claimed a sale of 300,650,000 discs. No independently audited figures of his global lifetime sales from his royalty reports have ever been published, and experts regard figures so high as this, before the industry became highly developed, as exaggerated.

No independently audited figures have ever been published for Elvis Aaron Presley (b Tupelo, Miss, 1935–77). In view of Presley's worldwide tally of over 170 major hits on singles and over 80 top-selling albums from 1956 and continuing after his death, it may be assumed that it was he who succeeded Crosby as the top-selling solo artist of all time.

CBS Records reported in Aug 1983 that sales of albums by Julio Iglesias (b 1943) in 6 languages had surpassed the 100 million mark.

### Most Successful Group

The singers with the greatest sales of any group have been The Beatles. This group from Liverpool, England, comprised George Harrison (b Feb 25, 1943), John Ono (formerly John Winston) Lennon (b Oct 9, 1940; d Dec 8, 1980), James Paul McCartney (b June 18, 1942) and Richard Starkey, *alias* Ringo Starr (b July 7, 1940). The all-time Beatles sales by May 1985 have been estimated by EMI at over 1,000 million discs and tapes.

All 4 ex-Beatles sold many million further records as solo artists. Since their break-up in 1970, it is estimated that the most successful group in the world is the Swedish foursome ABBA (Agnetha Faltskog,

Bjorn Ulvaeus, Benny Andersson and Anni-Frid Lyngstad) with total sales of 215 million discs and tapes by May 1985.

## Earliest Golden Discs

The earliest recorded piece eventually to aggregate a total sale of a million copies were performances by Enrico Caruso (b Naples, Italy, 1873, d 1921) of the aria *Vesti la giubba* (*On with the Motley*) from the opera *I Pagliacci* by Ruggero Leoncavallo (1858–1919), the earliest version of which was recorded on Nov 12, 1902.

The first single recording to surpass the million mark was Alma Rock's rendition of *Carry Me Back to Old Virginny* on the Red Seal label on a 12-in single-faced (later backed) record (No. 74420). The first actual golden disc was one sprayed by RCA Victor for presentation to Alton "Glenn" Miller (1904–44) for his *Chattanooga Choo Choo* on Feb 10, 1942.

## Most Golden Discs

The only *audited* measure of gold, platinum and multiplatinum singles and albums within the US is certification by the Recording Industry Association of America introduced Mar 14, 1958. Out of the 582 RIAA awards made to Jan 1, 1985, The Beatles with 47 (plus one with Billy Preston) have most for a group. Paul McCartney has an additional 27 awards outside the group, and with Wings (including one with Stevie Wonder and one with Michael Jackson).

The most awards to an individual is 51 to Elvis Presley, spanning 1958 to Jan 1, 1986. Globally, however, Presley's total of million-selling singles has been authoritatively put at "approaching 80."

## Largest Sellers

The greatest seller of any record to date is *White Christmas* by Irving Berlin (b Israel Bailin, at Tyumen, Russia, May 11, 1888), with 10 million for the Crosby single (recorded May 29, 1942) and more than 100 million in other versions.

The highest claim for any "pop" record is an unaudited 25 million for *Rock Around the Clock*, copyrighted in 1953 by the late Max Freedman and James E. Myers, under the name of Jimmy De Knight, and recorded Apr 12, 1954 by Bill Haley and the Comets.

The single record *Do They Know It's Christmas?*, written and produced by Bob Geldof (Eire) and Midge Ure (UK) played by an 11-star ensemble of British musicians under the name Band Aid, sold 1.6 million copies on discs and cassettes by May 1987 in the UK and 1.1 million more worldwide.

The best selling album of all time is *Thriller* by Michael Jackson (b Gary, Ind, Aug 29, 1958) with global sales in excess of 38.5 million copies to Aug 1, 1987.

The first classical long-player to sell a million was a performance featuring the pianist Harvey Lavan (Van) Cliburn, Jr (b Kilgore, Tex, July 12, 1934) of the *Piano Concerto No. 1* by Pyotr Ilyich Tchaikovsky (1840–93) of Russia. This recording was made in 1958 and sales reached 1 million by 1961, 2 million by 1965 and about 2,500,000 by Jan 1970.



consecutive weeks from Jan 1982. The Beatles have had the most No 1 records (20), Conway Twitty the most Country No 1's (35) and Aretha Franklin the most Black No 1's (20). Aretha Franklin is also the female solo artist with the most million-selling singles with 14 between 1967 and 1973. Elvis Presley has had the most hit singles on *Billboard's Hot 100-149* from 1956 to May 1987.

*Billboard* first published an album chart on March 15, 1945, when the No. 1 record was *King Cole Trio* featuring Nat "King" Cole (b March 17, 1919, d Feb 15, 1965). *South Pacific* was No. 1 for 69 weeks (non-consecutive) from May 1949. *Dark Side of the Moon* by Pink Floyd enjoyed its 674th week on the charts in May 1987 (over 19.5 million sold).

The Beatles had the most No. 1's (15), Elvis Presley was the most successful male soloist (9), and Simon and Garfunkel the top duo with 3. Elvis Presley had the most hit albums (93 from 1956-May 1987). Barbra Streisand has the most No. 1 albums (6), most hit albums in total (39 between 1963 and June 1987), 29 of which have been certified gold (500,000 sales), or platinum (1 million sales) by the RIAA, making Streisand the best-selling female singer of all time.

The best selling album by a group is Fleetwood Mac's *Rumours* with over 20 million sales to May 1987. The best selling album by a woman is *Whitney Houston* by Whitney Houston released in 1985. It had sold over 14 million copies by May 1987, including over 9 million in America, one million in the UK, and a further million in Canada. This is also the "best selling debut album of all time."

## Most Recordings

Miss Lata Mangeshkar (b 1928) has reportedly recorded between 1948 and 1984 not less than 30,000 solo, duet and chorus-backed songs in 20 Indian languages. She frequently has 5 sessions in a day and has "backed" 2,000 films.

## Grammy Awards

The record number of Grammy awards in a year is 8 by Michael Jackson in 1984. The all-time record is 25 since 1958 by the orchestral conductor Sir Georg Solti (GB) (b Budapest, Hungary, Oct 21, 1912).

### Phonographic Identification

Dr Arthur B. Lintgen (b 1932) of Rydal, Pa, has unique and proven ability to identify the music on phonograph records purely by visual inspection without hearing a note.

## Compact Discs

Announced by Philips in 1978, and introduced by the same company in 1982, the Compact Disc (CD) increasingly challenges the LP and cassette as a recording medium. By 1986 the CD represented 7 percent of all albums sold in the UK, 10 percent in America and 20 percent in Japan. The first CD to sell a million copies worldwide was Dire Straits' *Brothers in Arms* in 1986.

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## Chapter 7

# The World's Structures

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### EARLIEST STRUCTURES

The earliest known human structure is a rough circle of loosely piled lava blocks found in 1960 on the lowest cultural level at the Lower Paleolithic site at Olduvai Gorge in Tanzania, revealed by Dr Mary Leakey in Jan 1960. The structure was associated with artifacts and bones on a work-floor, dating to c. 1,700,000 bc.

The earliest evidence of *buildings* yet discovered is that of 21 huts with hearths or pebble-lined pits and delimited by stake holes, found Oct 1965 at the Terra Amata site in Nice, France, thought to belong to the Acheulian culture of 120,000 years ago. Excavation carried out between June 28 and July 5, 1966 revealed one hut with palisaded walls having axes of 49 and 20 ft.

The oldest free-standing structures, described in 1647, are now believed to be the megalithic temples at Mgarr and Skorba in Malta and Ggantija in Gozo, dating from c. 3250 bc.

The remains of a stone tower 20 ft high built into the walls of which have been excavated, and dated to 5000 bc, the foundation of the walls to as early as 8350 bc.

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### BUILDINGS FOR WORKING

#### Largest Industrial Building

The largest industrial plant in the world is the Nizhniy Tagil Iron and Steel Plant, USSR, which has 204.3 acres of floor space. It has an annual capacity to produce 2,500 T-72 tanks.

#### Largest Commercial Buildings

The greatest ground area covered by any building under one roof is the flower auction building of the cooperative VBA (Verenigde Bloemenveilingen Aalsmeer), The Netherlands, which measures 66 × 1,794 ft with a floor surface of 84.82 acres. A new extension of 11.05 acres was built in 1986.

The building with the largest cubic capacity is the Boeing Com-

pany's main assembly plant at Everett, Wash., completed in 1968. The building, constructed for the manufacture of Boeing 747 jet airliners, has a maximum height of 115 ft and has a capacity of 200 million cu ft.

## **Largest Scientific Building**

The most capacious scientific building is the Vehicle Assembly Building (VAB) at Complex 39, the selected site for the final assembly and launching of the Apollo moon spacecraft on the Saturn V rocket, at the John F. Kennedy Space Center (KSC) on Merritt Island near Cape Canaveral, Fla. It is a steel-framed building measuring 716 ft in length, 518 ft in width and 525 ft in height. The building contains four bays, each with its own door 460 ft high. Construction began in Apr 1963 by the Ursum Consortium. Its floor area is 343,500 sq ft (7.87 acres) and its capacity is 129,482,000 cu ft. The building was "topped out" on Apr 14, 1965 at a cost of \$108,700,000.

## **Largest Administrative Building**

The largest ground area covered by any office building is that of the Pentagon, in Arlington, Va. Built to house the US Defense Department's offices, it was completed Jan 15, 1943 and cost about \$83 million. Each of the outermost sides of the Pentagon is 921 ft long and the perimeter of the building is about 1,500 yd. The 5 stories of the building enclose a floor area of 6½ million sq ft. During the day 29,000 people work in the building. The telephone system of the building has more than 44,000 telephones connected by 160,000 miles of cable and its 220 staff members handle 280,000 calls a day. Two restaurants, 6 cafeterias and 10 snack bars and a staff of 675 form the catering department of the building. The corridors measure 17 miles in length and there are 7,748 windows to be cleaned.

## **Largest and Tallest Office Buildings**

The largest office buildings with the largest rentable space are the twin towers comprising the World Trade Center in NYC, with a total of 4,370,000 sq ft (100.32 acres) in each. The taller tower (Tower Two) is 1,362 ft ¾ in high. The tip of the TV antenna on Tower One is 1,710 ft above street level, and is thus 151 ft taller than the antenna of the Sears Tower (see below).

The tallest office building is the Sears Tower, the national headquarters of Sears Roebuck & Co on Wacker Drive, Chicago, with 110 stories, rising to 1,454 ft and completed in 1974. Its gross area is 4,400,000 sq ft (101.0 acres). It was "topped out" on May 4, 1973, surpassing the World Trade Center in New York in height, at 2:35 p.m. Mar 6, 1973 with the first steel column reaching to the 104th story. The addition of two TV antennae brought the total height to 1,559 ft. The building's population is 16,700, served by 103 elevators and 18 escalators. It has 16,000 windows.

Tentative plans for a 169-story 2,300-ft-tall building, projected to cost \$1,250,000,000, for the Chicago Loop, were published on Oct 27, 1981. Plans for a 150-story, 1,670-ft-tall tower, on the upper West Side of NYC, entitled Television City, were unveiled by Donald Trump on Nov 15, 1985.



## **Largest Construction Project**

The Madinat Al-Jubail Al-Sinaiyah project in Saudi Arabia (1976-1996) covering 230,412.8 acres is the largest in history. The work force on the city and industrial port complex is increasing to a peak of 33,187 from the mid-1982 figure of 17,200. The total earth-moving and dredging volume will reach 0.82 of a cubic mile.

## **Largest Garages and Parking Lots**

The largest car park is the West Edmonton Mall in Edmonton, Alberta, Canada, which has covered garaging for 20,000 vehicles, and overflow facilities for 10,000 more cars.

The largest private garage ever built was one for the sultan of Brunei (see page 247).

The largest multistoried garage is the KMB Overhaul Centre operated by the Kowloon Motors Bus Co Ltd, Hong Kong. Built for double-decker buses, its 4 floors occupy more than 11.6 acres.

## **Sewage Works**

The largest single full treatment sewage works is the West-Southwest Treatment Plant, opened in 1940 on a site of 501 acres in Chicago. It serves an area containing 2,940,000 people. It treated an average of 835,000,000 gal of waste per day in 1973. The capacity of its sedimentation and aeration tanks is 1.6 million cu yd.

## **Largest Hangars**

The largest hangar is Hangar 375 ("Big Texas") at Kelly Air Force Base, San Antonio. The high bay area measures 2000 x 366 x 98 ft, with 4 doors each 250 ft wide and 60 ft high, weighing 657 tons. It is surrounded by a 44-acre concrete apron.

Delta Air Lines' jet base, on a 140-acre site at Hartsfield International Airport, Atlanta, Ga has 36 acres under its roof.



## Grain Elevator

The largest single-unit grain elevator is that operated by the C-G-F Grain Company at Wichita, Kans. Consisting of a triple row of storage tanks, 123 on each side of the central loading tower or "head house," the unit is 2,717 ft long and 100 ft wide. Each tank is 120 ft high, with an inside diameter of 30 ft, giving a total storage capacity of 20 million bushels of wheat. The largest collection of elevators is at Thunder Bay, Ontario, Canada, on Lake Superior, with a total capacity of 103.9 million bushels.

## Largest Embassy

The largest embassy is the USSR embassy on Bei Xiao Jie, Peking, China, in the northeastern corner of the walled city. The whole 45-acre area of the old Orthodox Church mission (established 1728), now known as the *Bei guan*, was handed over to the USSR in 1949.

## Largest Filling Station

"Little America," west of Cheyenne, Wyo, at the junction of Interstate Routes 80 and 25 claims to be the world's biggest gas station with 52 diesel and gas pumps—none self-service. The highest in the world is at Leh, Ladakh, India at 12,001 ft operated by Indiaoil.

accepted sense only existed much later. The oldest in the world is that at Gomdan, Yemen, which originally had 20 stories and dates from before 100 AD.

The largest inhabited castle is the British Royal residence of Windsor Castle, Berkshire. It is primarily of 12th-century construction and is in the form of a waisted parallelogram, 1,890 ft  $\times$  540 ft. The total area of Dover Castle (England), however, covers 34 acres with a width of 1,100 ft and a curtain wall of 1,800 ft, or, if underground works are taken in, 2,300 ft.

The largest ancient castle is Hradcany Castle, Prague, Czechoslovakia, built in the 9th century. It is a very oblong, irregular polygon with an axis of 1,870 ft and an average traverse diameter of 420 ft, with a surface area of 18 acres.

The walls of Ur (now Muquyyar), destroyed in 2006 BC were 88½ ft in thickness.

## Largest Palaces

The largest palace is the Imperial Palace (*Gu gong*) in the center of Peking (*Beijing*, northern capital), China, which covers a rectangle 1,050 yd  $\times$  820 yd, an area of 177.9 acres. The outline survives from the construction of the third Ming emperor Yung-lo of 1402–24, but due to constant rearrangements most of the intramural buildings are 18th century. These consist of 5 halls and 17 palaces of which the last occupied by the last Empress was the Palace of Accumulated Elegance (*Chu xia gong*) until 1924.

The Palace of Versailles, 14 mi southwest of Paris, has a facade with 375 windows, 634 yd in length. The building, completed in 1682 for Louis XIV, required over 30,000 workmen.

Brunei, a former British protectorate on the island of Borneo, newly independent (1984), completed in Jan 1984 the largest residential palace currently in use. Built for the Sultan, it reportedly cost \$422 million, has its own mosque and heliport, 1,788 rooms, a garage for the Sultan's 110 cars and space for 800 vehicles in all, and 2 mi of air conditioning. The whole of Brunei has only 500 mi of roads.

The world's largest moats are those which surround the Imperial Palace in Peking. From plans drawn by French sources they appear to measure 54 yd wide and have a total length of 3,600 yd. The city's moats total 23½ miles in all.

## Apartment Houses

The tallest block of apartments is Lake Point Towers of 70 stories, 645 ft high in Chicago.

The newly constructed condominium Metropolitan Tower on W 57 St, NYC, overlooking Central Park, is higher—716 ft in all—but is not entirely devoted to apartments. Just 48 of its 78 stories are residential and the lower floors are sold to commercial enterprises. Builder-developer is the Harry MacLowe Real Estate Co.

The Cudecom Building, an 8-story apartment block in Bogotá, Colombia, weighing 8,470 tons was moved intact 95 ft on Oct 6, 1974 to make way for a road.

## Largest Hotels

The Hilton Hotel in Las Vegas (built 1974–81) with 3,174 bedrooms.



claims to be the largest hotel, although it has fewer bedrooms than the Hotel Rossiya in Moscow with 3,200 bedrooms. The Hilton also has 13 international restaurants, 125,000 sq ft of convention space, a 48,000 sq ft pillar-free ballroom, and a 10-acre rooftop recreation deck. Over 3,600 are employed.

This compares with the 12-story Hotel Rossiya in Moscow, with 3,200 rooms providing accommodation for 6,000 guests, opened in 1967.

The Izmailovo Hotel complex, opened July 1980 for the XXIIInd Olympic Games in Moscow, was designed to accommodate 9,500 people.

## Tallest Hotels

The tallest new hotel, measured from the street level of its main entrance to the top, is the 741.9-ft-tall 73-story Westin Stamford Hotel in Raffles City, Singapore, "topped out" in Mar 1985. The \$235 million hotel is operated by Westin Hotel Co. Their Detroit Plaza Hotel in Detroit (almost a duplicate of their Peachtree Center Plaza Hotel in Atlanta, Ga) is slightly taller. This hotel, opened in early 1977, is 748 ft tall starting from its lower street level, when measured from its back entrance to the top.

## Most Expensive Homes

The most expensive private house ever built is the Hearst Ranch at San Simeon, Calif. It was built 1922-39 for William Randolph Hearst (1863-1951), at a total cost of more than \$30 million. It has more than 100 rooms, a 104-ft-long heated swimming pool, an 83-ft-long assembly hall and a garage for 25 limousines. The house would require 60 servants to maintain it.

The largest private house in the world is 250-room Biltmore House in Asheville, NC. It is owned by George and William Cecil, grandsons of George Washington Vanderbilt II (1862-1914). The house was built between 1890 and 1895 on an estate of 119,000 acres, at a cost of \$4,100,000, and is now valued at \$55 million with 12,000 acres.

The largest house used solely as a residence is Arabesque, the 25,000-sq-ft home in Acapulco, Mexico, of the Baron and Baroness of Portanova, according to information from Liza Lefcovich of the *National Enquirer*. A staff of 70 is in residence.

## Most Expensive Hotel Suite

The costliest hotel accommodation is the roof-top Royal Suite at \$3000 per day for a minimum term of 3 months at the Marbella Dinamar Hotel, Spain. It has 2 halls, 2 dining rooms, 3 double bedrooms, 7 bathrooms, a kitchen, a service area, a study/library office, a lounge, an 8-meter heated swimming pool with a massage system, 2 solariums, a sauna and an 18 hole putting green.

## Spas

The largest spa measured by number of available treatment rooms is Vichy, Allier, France, with 14,000 rooms. Spas are named after the watering place called Spa in the Liège province of Belgium where the hydropathy was developed from 1626. The highest French spa is Barèges, Hautes-Pyrénées, at 4,152 ft above sea level.

### 3. STRUCTURES FOR ENTERTAINMENT

#### Largest Circus

The largest permanent circus is Circus Circus, Las Vegas, Nev., opened Oct 18, 1968 at a cost of \$15 million. It covers an area of 129,000 sq ft capped by a 90-ft-high tent-shaped flexiglass roof. (Circus Stunt records are in Chapter 11.)

The largest traveling circus is the Circus Vargas in the US which can accommodate 5,000 people under its Big Top.

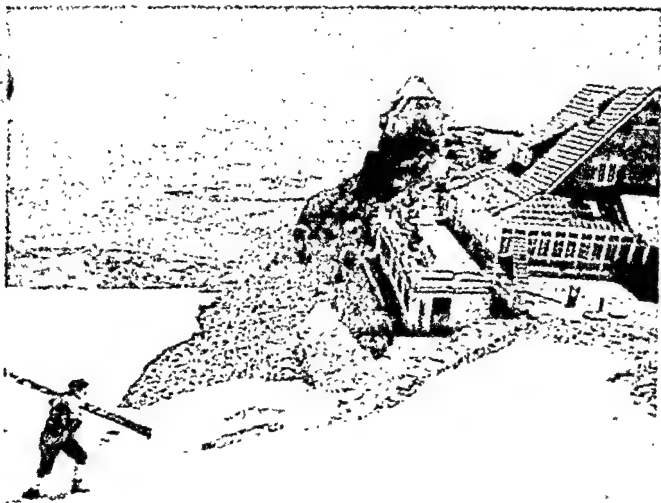
#### Night Clubs

The oldest night club (*boîte de nuit*) was "Le Bal des Anglais" at 6 Rue des Anglais, Paris 5, France. Founded in 1843, it closed c. 1960.

The largest night club in the world is Gilley's Club (formerly Shelly's) built in 1955 and extended in 1971 on Spencer Highway, Houston, Tex. It has a seating capacity of 6,000 under one roof covering 4 acres.

In the more classical sense the largest night club is "The Mikado" in the Akasaka district of Tokyo, Japan, with a seating capacity of 2,000. It is "manned" by 1,250 hostesses. Binoculars are essential to an appreciation of the floor show.

The lowest night club is the "Minus 206" in Tiberias, Israel, on the shores of the Sea of Galilee. It is 676 ft below sea level. An alternative



**HIGHEST RESTAURANT:** At Chacaltaya, high in the Bolivian Andes, 17,519 ft up, is this ski resort eatery. (South American Pictures)

candidate is "Outer Limits," opposite the Cow Palace, San Francisco, which was raided for the 151st time on Aug 1, 1971. It has been called both "The Most Busted Joint" and "The Slowest to Get the Message."

## Restaurants

The earliest restaurant was opened in 1725 in Calle de Cuchilleras 17, Madrid. The painter Goya was a dishwasher there in 1765 when he was 19.

The biggest restaurant reported is the Tump Nak Thai in Bangkok, Thailand, which consists of 65 adjoining houses built on 10 acres, with 1,000 waiters to serve 3,000 potential customers.

The highest restaurant in the world is at the Chacaltaya ski resort, Bolivia at 17,519 ft.

## Largest Harem

The world's most capacious harem is the Winter Harem of the Grand Seraglio at Topkapi, Istanbul, Turkey completed in 1589 with 400 rooms. By the time of the deposing of Abdul Hamid II in 1909 the number of *carge* (those who serve) had dwindled from 1,200 to 370 odalisques with 127 eunuchs.

## Largest Stadiums

The largest stadium is the open Strahov Stadium in Prague, Czechoslovakia. It was completed in 1934 and can easily accommodate 240,000 spectators for mass displays of up to 40,000 Sokol gymnasts or aerobic devotees.

The largest football (soccer) stadium is the Maracaña Municipal Stadium in Rio de Janeiro, Brazil, which has a normal capacity of 205,000, of whom 155,000 may be seated. A crowd of 199,854 was accommodated for the World Cup final between Brazil and Uruguay on July 16, 1950. A dry moat, 7 ft wide and over 5 ft deep, protects players from spectators and *vice versa*.

The largest covered stadium in the world is the Azteca Stadium, Mexico City, opened in 1968, which has a capacity of 107,000, of whom nearly all are under cover.

The largest retractable roof is being constructed to cover the 60,000-capacity Toronto Blue Jays' new stadium near the CN Tower for completion by Aug 1988. The diameter will be 679 ft.

## Largest One-Piece Roof

The transparent acrylic glass "tent" roof over the Munich Olympic Stadium, W Germany, measures 914,940 sq ft in area. It rests on a steel net supported by masts. The roof of longest span is the 680-ft diameter of the Louisiana Superdome. The major axis of the elliptical

Texas Stadium, Irving, Tex., completed in 1971 is, however, 787 ft 4 in.

### **Largest Indoor Arena**

The largest indoor stadium is the 13-acre \$173-million 273-ft-tall Superdome in New Orleans, La., completed in May 1975. Its maximum seating capacity for conventions is 97,365 or 76,791 for football. Box suites rent for \$35,000, excluding the price of admission. A gondola with six 312-in TV screens produces instant replay.

### **Largest Amusement Park**

The largest amusement resort is Disney World on 28,000 acres of Orange and Osceola Counties, 20 miles southwest of Orlando in central Florida. It was opened on Oct 1, 1971. This \$400 million investment attracted 10,700,000 visitors in its first year, and well above 20 million each year 1981-85, for a total of 200 million.

The \$900 million Epcot Center (Experimental Prototype Community of Tomorrow) next to Disney World near Orlando was opened in Oct 1982. Peak days see 120,000 at Epcot and Magic Kingdom, the two parks in Orlando.

The most attended resort in the world is Disneyland, Anaheim, Calif. (opened 1955) where the total number of visitors reached 250 million on Aug 24, 1985. The greatest attendance on one day was 82,516 on Aug 16, 1969.

### **Fairs**

The earliest major international fair was the Great Exhibition of 1851 in the Crystal Palace, Hyde Park, London, which in 141 days attracted 6,039,195 admissions.

The largest International Fair site was that for the St Louis-Louisiana Purchase Exposition, which covered 1,271.76 acres. It also staged the 1904 Olympic Games and drew an attendance of 19,694,855.

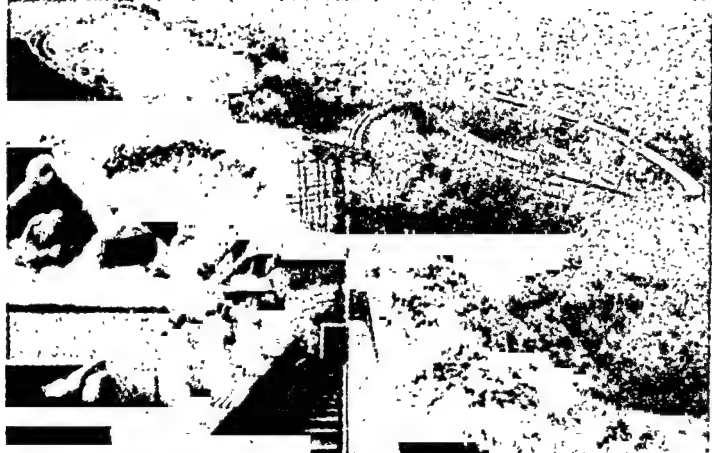
The record attendance for any fair was 64,218,770 for Expo '70 held on an 815-acre site at Osaka, Japan, from March to Sept 13, 1970. It made a profit of 19,439,402,017 yen (over \$45 million).

### **Largest Carousel**

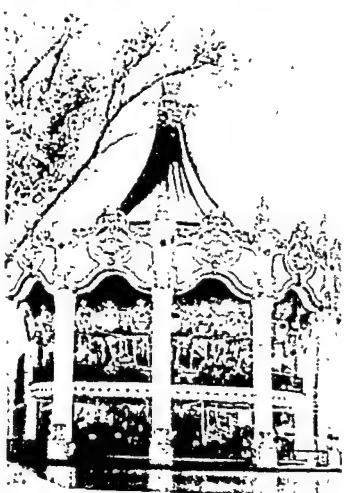
The *Columbia*, located in Marriott's Great America in Santa Clara, Calif., is a gilded double-decker carousel 100 ft or 10 stories high from base to pinnacle, and 27½ ft in circumference. It can carry 115 passengers. On board are 103 carousel animals (including on the lower level 36 "jumping" horses, 6 standing horses, a 50-year-old horse, a camel, giraffe, lion, tiger, dragon, deer, sea horse, 2 ostriches, pigs, cats and rabbits) and 2 chariots. On the upper level are 45 more "jumping" horses and another chariot. This merry-go-round runs at a speed of 7 revolutions per min. Construction cost was \$1.8 million.

### **Ferris Wheel**

The original Ferris Wheel, named after its constructor, George W. Ferris (1859-96), was erected in 1893 at the Midway, Chicago, at a cost of \$385,000. The wheel was 250 ft in diameter, 790 ft in



**LONGEST ROLLER COASTER:** ▲  
With a "stimulating" drop of 141 ft, "The Beast" at King's Island, near Cincinnati, O., runs at a top speed of 64.77 mph over 7,400 ft of track, including 800 ft of tunnel and a 540° banked double turn. (Rick Norton, King's Island)



**LARGEST CAROUSEL:** Of the 120 carousels left in the US (at one time there were 2,000) the tallest is the "Columbia" at Marriott's Great America, Santa Clara, Calif. This double-decker gilded merry-go-round designed by R. Duell & Associates is 100 feet high and can carry 115 passengers.

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**LARGEST AMUSEMENT RESORT:** Disney World near Orlando, Fla., features a 180-ft-high Cinderella's Castle.



circumference, weighed 1,198 tons, and carried 36 cars each seating 60 people, making a total of 2,160 passengers. The structure was removed in 1904 to St Louis, and was eventually sold as scrap for \$1,800.

In 1897, a Ferris Wheel with a diameter of 300 ft was erected for the Earl's Court Exhibition, London. It had 10 1st-class and 30 2nd-class cars.

The largest wheels now operating are "Giant Peter" at Himeji Central Park, Himeji City, Hyogo, and one at the city of Tsukuba, both in Japan, and with a height of 278 ft 10 in. The latter has 46 cars with capacity for 384 riders.

## Longest Slide

The longest slide in the world is the Bromley Alpine Slide on Route 11 in Peru, Vt. This has a length of 4,600 ft (0.87 mile) and a vertical drop of 820 ft.

## Largest Pleasure Beach

The largest pleasure beach is Virginia Beach, Va. It has 28 miles of beach front on the Atlantic and 10 miles of estuary frontage. The area which embraces 255 sq mi, contains 134 hotels and motels.

## Pleasure Piers

The longest pleasure pier is Southend Pier at Southend-on-Sea in Essex, England. It is 1.34 miles in length, and was first opened in Aug 1889, with final extensions made in 1929. A railway on the pier closed in Oct 1978, but reopened on May 2, 1986. In 1949-50, the pier had 5,750,000 visitors.

The resort with most piers is Atlantic City, NJ, with 6 existing pre-World War II and 5 currently.

## Roller Coasters

The maximum speeds claimed for roller coasters have in the past been exaggerated for commercial reasons. The twin-track, triple-helix American Eagle at Marriott's Great America, Gurnee, Ill, opened on May 23, 1981, has a vertical drop of 147.4 ft on which a speed of 66.31 mph is reportedly reached. The longest roller coaster in the world is *The Beast* at King's Island near Cincinnati, Ohio. Scientific tests at the base of its 141-ft-high drop returned a speed of 64.77 mph on Apr 5, 1980. The total track length of 7,400 ft incorporates 800 ft of tunnels, a 540° banked double turn.

The tallest is the 246-ft-high *Moonsault Scramble* at Fujikyū Highland Park, Japan, opened June 24, 1983. Its speed is 65.2 mph.

## Bars

The largest beer-selling establishment is the Mathäser, Bayerstrasse 5, Munich, W Germany, where the daily sale reaches 100,000 pints. It was established in 1829, was demolished in World War II, rebuilt by 1955, and now seats 5,500 people. Consumption at the Dube beer halls in the Bantu township of Soweto, Johannesburg, South Africa,

may, however, be higher on some Saturdays when the average of 6,000 gallons is far exceeded.

The longest permanent bar is the 340-ft-long bar in Lulu's Roadhouse, Kitchener, Ontario, Canada, opened on Apr 3, 1984. Temporary bars have been erected of greater length.

The bar at Erickson's on Burnside Street, Portland, Ore, in its heyday (1883-1920) ran continuously around and across the main saloon, measuring 684 ft. The chief bouncer, Edward "Spider" Johnson, had a chief assistant named "Jumbo" Reilly who weighed 320 pounds and was said to resemble "an ill-natured orangutan." Beer was 5 cents for 16 fluid ounces.

## Ballroom

The largest dance floor, 256 ft long, is one used for championships at Earl's Court Exhibition Hall, Kensington, London.

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## 4. TOWERS AND MASTS

### Tallest Structure

The tallest structure is the guyed Warszawa Radio mast at Konstantynow 60 miles northwest of Warsaw, Poland, which is 2,120 ft 8 in tall, or more than four-tenths of a mile. The mast was completed July 18, 1974 and put into operation July 22, 1974. Work began on the tubular steel construction, with its 15 steel guy ropes, in 1970. It was designed by Jan Polak and weighs 615 tons. The mast is so high that anyone falling off the top would reach terminal velocity, and hence cease to be accelerating, before hitting the ground. It recaptured for Europe a record held in the US since the Chrysler Building surpassed the Eiffel Tower in 1929.

### Tallest Tower

The tallest self-supporting tower (as opposed to a guyed mast) is the \$44 million CN Tower in Metro Centre, Toronto, Canada. It rises to 1,822 ft 1 in. Excavation began Feb 12, 1973, for the 145,000-ton structure of reinforced, lost-tensioned concrete, and it was "topped out" Apr 2, 1975. A 416-seat restaurant revolves in the 7-floor Sky Pod at 1,140 ft, from which the visibility extends to hills 74½ miles distant. Lightning strikes the top about 200 times (in 30 storms) each year.

The tallest tower built before the era of television masts is the Tour Eiffel (Eiffel Tower), in Paris, designed by Alexandre Gustave Eiffel (1832-1923) for the Paris Exhibition and completed on March 31, 1889. It was 985 ft 11 in tall, now extended by a TV antenna to 1,052 ft 4 in, and weighs 8,091 tons. The maximum sway in high winds is 5 in. The whole iron edifice, which has 1,792 steps, took 2 years, 2 months, and 2 days to build and cost 7,799,401 francs 31 centimes.

## 5. BRIDGES

### Oldest

Arch construction was understood by the Sumerians as early as 3200 BC and a reference exists to a Nile bridge in 2650 BC. The oldest surviving datable bridge is the slab stone single arch bridge over the River Meles in Smyrna (now Izmir), Turkey, which dates from c. 850 BC.

### Longest Suspension Bridge

The longest bridge span is the main span of the Humber Estuary Bridge in England, at 4,626 ft. Work began on July 27, 1972. The towers are 533 ft 1½ in tall from datum and are 1½ inches out of parallel, to allow for the curvature of the earth. Including the Hessle and Barton side spans, the bridge stretches 1.37 miles. The bridge was structurally completed on July 18, 1980 at a cost of £91 million (about \$185 million) and was opened by HM the Queen on July 17, 1981. Tolls ranging from 60 pence for motorcycles to £8 for heavy vehicles, operative from May 4, 1981, are the highest in Britain.

The Mackinac Straits Bridge between Mackinaw City and St Ignace, Mich is the longest suspension bridge measured between anchorages (1.58 miles) and has an overall length, including viaducts of the bridge proper measured between abutment faces, of 3.63 miles.

The double-deck road-railroad Akashi-Kaikyo suspension bridge linking Honshu and Shikoku, Japan, is planned to be completed in 1988. The main span will be 5,840 ft in length with an overall suspended length with side spans totaling 11,680 ft. Work began in Oct 1978, and the eventual cost is expected to exceed 1 trillion yen (\$4,500,000,000).

Plans for a bridge over the Messina Straits to link Sicily to the Italian mainland are dependent upon the budget of the European Common Market (EEC). One preliminary study calls for towers 1,329 ft tall, a span of more than 2 mi, and a cost of about \$20,000 million.

### Longest Cantilever Bridge

The Québec Bridge (Pont de Québec) over the St Lawrence River in Canada has the longest cantilever span—1,800 ft between the piers and 3,239 ft overall. It carries a railroad track and two roadways. Begun in 1899, it was finally opened to traffic Dec 3, 1917, at a cost of Can. \$22,500,000 and 87 lives.

### Longest Steel Arch Bridge

The longest steel arch bridge is the New River Gorge Bridge near Fayetteville, W Va, completed in 1977, with a span of 1,700 ft.

### Widest and Narrowest Bridges

The widest long-span bridge is the 1,650-ft-long Sydney Harbour Bridge, Australia, which is 160 ft wide. It carries 2 electric overhead railroad tracks, 8 lanes of roadway and a cycleway and footway. It was officially opened March 19, 1932.

The Crawford Street Bridge in Providence, RI, has a width of 1,147 ft.

The Somerset drawbridge in Bermuda has in the center an 18-in-wide wooden flap that opens to allow the masts of sailboats to pass through.

## Covered Bridge

The longest covered bridge is that at Hartland, New Brunswick, Canada, measuring 1,282 ft overall, completed in 1899.

## Railroad Bridges

The longest railroad bridge in the world is the Huey P. Long Bridge, Metairie, La, with a railroad section 22,996 ft (4.35 miles) long. It was completed Dec 16, 1935, with a longest span of 790 ft.

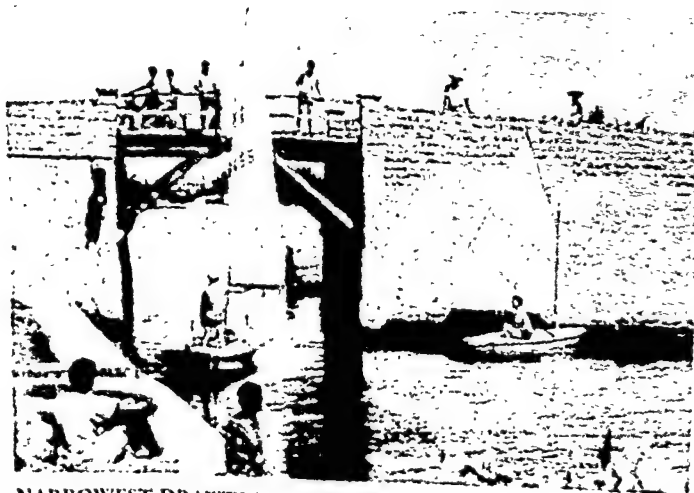
The Yangtse River Bridge completed in 1968 in Nanking, China, is the longest combined highway and railroad bridge. The rail deck is 4.20 miles and the road deck an additional 2.85 miles.

## Floating Bridge

The longest floating bridge is the Second Lake Washington Bridge in Seattle, Wash. Its total length is 12,596 ft and its floating section measures 7,518 ft (1.42 miles). It was built at a cost of \$15 million, and completed in Aug 1963.

## Highest Bridges

The highest bridge is the suspension bridge over the Royal Gorge of the Arkansas River in Colorado. It is 1,053 ft above the water level. It has a main span of 880 ft and was constructed in 6 months, ending



**NARROWEST DRAWBRIDGE:** To let sailboats with tall masts go through, the Somerset Bridge in Bermuda has an 18-in-wide wooden flap in the center.

on Dec 6, 1929. The highest railroad bridge in the world is at Fades, outside Clermont-Ferrand, France. It was built 1901-09 with a span of 472 ft and is 435 ft above the River Sioule. The highest road bridge is at an altitude of 18,380 ft near Khardungla, Ladakh, India, built by the Indian army in Aug 1982. Called the Bailey Bridge, it is only 98.4 ft long.

## Longest Bridging

The world's longest bridging is the Second Lake Pontchartrain Causeway, opened March 23, 1969, joining Lewisburg and Metairie, La. Its length is 126,055 ft (23.87 miles). It cost \$29,900,000 and is 228 ft longer than the adjoining First Causeway completed in 1956.

The longest railroad viaduct in the world is the rock-filled Great Salt Lake railroad trestle, carrying the Southern Pacific Railroad 11.85 miles across the Great Salt Lake, Utah. It was opened as a pile and trestle bridge March 8, 1904, and converted to rock fill in 1955-1960.

The longest stone arch bridging in the world is the 3,810-ft-long Rockville Bridge north of Harrisburg, Pa with 48 spans containing 219,520 tons of stone and completed in 1901.

## Largest Aqueducts

The greatest of ancient aqueducts was the Aqueduct of Carthage in Tunisia, which ran 87.6 miles from the springs of Zaghouan to Djebel Djougar. It was built by the Romans during the reign of Publius Aelius Hadrianus (117-138 AD). By 1895, 344 arches still survived. Its original capacity has been calculated at 8,400,000 gallons per day. The triple-tiered aqueduct Pont du Gard, built in 19 AD near Nimes, France, is 160 ft high. The tallest of the 14 arches of the Aguas Livres Aqueduct, built in Lisbon, Portugal, in 1784, is 213 ft 3 in.

The longest aqueduct, in the modern sense of a water conduit as opposed to an irrigation canal, is the California State Water Project aqueduct, completed in 1974 to a length of 826 miles, of which 385 miles is canalized.

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## 6. CANALS

Relics of the oldest canals in the world, dated by archeologists to c. 4000 BC, were discovered near Mandal, Iraq, early in 1968.

### Longest Canals

The longest canalized system is the Volga-Baltic Canal opened in Apr 1965. It runs 1,850 miles from Astrakhan up the Volga, via Kuybyshev, Gorkiy and Lake Ladoga, to Leningrad, USSR. The longest canal of the ancient world was the Grand Canal of China from Peking to Hangchow. It was begun in 540 BC and not completed until 1327 AD by which time it extended for 1,107 miles. The estimated work force c. 600 AD reached 5 million on the Pien section. By 1950 the silt had piled up to the point that it was, in no place, more than 6 ft deep. It is now, however, opened up and plied by ships of up to 2,240 tons.

**LONGEST SHIP CANAL:** A satellite view from space of the 100-mi-long Suez Canal looking south near the point where it enters the Red Sea. Egypt is to the right and Saudi Arabia to the distant left. (Daily Telegraph)



The longest big ship canal is the Suez Canal, linking the Red and Mediterranean Seas, opened Nov 16, 1869, but inoperative from June 1967 to June 1975. The canal was planned by the French diplomat Ferdinand de Lesseps (1805–1894) and work began Apr 25, 1859. It is 100.6 miles in length from Port Said lighthouse to Suez Roads, 197 ft wide. The work force was 8,213 men and 368 camels. The USS *Shreveport* transited southbound Aug 15–16, 1984 in a record 7 hours 45 min. A vessel with a beam of 159.7 ft, and a length of 1,081.5 ft, the SS *British Progress*, a VLCC (Very Large Crude Carrier) was the largest vessel to transit the Suez. (The Panama Canal width is more than 50 ft narrower.)

### Busiest Canal

The busiest big ship canal is the Panama, first transited on Aug 15, 1914. In 1974, there were a record 14,304 ocean-going transits. The largest liner to transit is *Queen Elizabeth 2* (66,851 gross tons) in Jan 1980, for a toll of \$89,154.62. The ships with the greatest beam to transit have been the 4 US battleships of the *Iowa* class with beams of 108 ft 2 in.

The lowest toll for use of the Panama Canal was 36 cents for the swimmer Richard Halliburton in 1928.

The fastest transit was 2 hours 41 min by the US Navy hydrofoil *Pegasus* on June 20, 1979.

## Seaway

The longest artificial seaway is the St Lawrence Seaway (189 miles long) along the NY State-Ontario border from Montreal to Lake Ontario, which enables ships up to 728 ft long and 26.2 ft draught, some of which are of 29,000 tons, to sail 2,342 miles from the North Atlantic, up the St Lawrence Estuary and across the Great Lakes to Duluth, Minn, on Lake Superior (602 ft above sea level). The project cost \$470 million and was opened Apr 25, 1959.

## Irrigation Canal

The longest irrigation canal is the Karakumskiy Kanal, stretching 528 miles from Haun-Khan to Ashkhabad, Turkmenistan, USSR. In Sept 1971 the navigable length was reported to have reached 280 miles. The length of the \$925 million project will eventually reach 930 miles.

## Largest and Deepest Locks

The largest single lock is the sea lock at Zeebrugge, Belgium, measuring 1640 × 187 × 75.4 ft giving a volume of 857,066 cu yd. The Berendrecht Lock, Antwerp, Belgium, has the same length but a width of 223 ft and a depth of 70.5 ft giving a volume of 956,000 cu yd.

The deepest lock is the John Day Dam lock on the Columbia River, Ore and Wash, completed in 1963. It can raise or lower barges 113 ft and is served by a 1,100-ton gate.

The highest lock elevator overcomes a head of 225 ft at Ronquières on the Charleroi-Brussels Canal in Belgium. Two 236-wheeled caissons, each able to carry 1,512 tons, take 22 min to cover the 4,698-ft-long ramp.

## Largest Canal Cut

The Gaillard Cut (known as the "Ditch") on the Panama Canal is 270 ft deep between Gold Hill and Contractor's Hill with a bottom width of 500 ft. In one day in 1911 as many as 333 dirt trains each carrying 400 tons left this site. The total amount of earth excavated for the whole Panama Canal was 666,194,450 sq yd to Oct 1, 1979. This total will be raised by the further widening of the Gaillard Cut.

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## 7. DAMS

The earliest known dams were those uncovered by the British School of Archeology in Jerusalem in 1974 at Jawa in Jordan. These stone-faced earth dams are dated to c. 3200 bc.

## Most Massive Dam

Measured by volume, the largest dam is the 98-ft-high New

Cornelia Tailings earthfill dam on the Ten Mile Wash, Ariz with a volume of 274,015,735 cu yd, completed in 1973 to a length of 6.74 miles.

The Chapetón dam in Argentina is planned to have a volume of 387,400,000 cu yd.

## Highest Dam

The highest dam will be the Rogunsky earthfill dam in the USSR which will have a final height of 1,098 ft across the Vakhsh River, Tadjikistan, with a crest length of only 2,165 ft. Building since 1973, completion date is still unconfirmed. Meanwhile, the tallest is the 984-ft-high Narek dam in the USSR.

## Largest Concrete Dam

The largest concrete dam, and the largest concrete structure, is Grand Coulee Dam on the Columbia River, Wash. Work on the dam was begun in 1933, it began working on Mar 22, 1941 and was completed in 1942 at a cost of \$56 million. It has a crest length of 4,173 ft and is 550 ft high. It contains 10,585,000 cu yd of concrete and weighs about 19,285,000 tons. The hydroelectric power plant (now being extended) will have a capacity of 9,780,000 kw.

## Longest River Dam and Sea Dam

The longest river dam is the 44.7-mi-long 134.5-ft-high Yacyretá-Apípe dam completed in 1983 across the Paraná on the Paraguay-Argentina border.

In the early 17th century, an impounding dam of moderate height was built in Lake Hungtze, Kiangsu, China, to a reputed length of 62 miles.

The longest sea dam is the Afsluitdijk stretching 20.195 miles across the mouth of the Zuider Zee in two sections of 1.553 miles (mainland of North Holland to the Isle of Wieringen) and 18.641 miles (Wieringen to Friesland). It has a sea-level width of 293 ft and a height of 24 ft 7 in.

## Strongest Structure

The world's strongest structure will be the 793-ft-high Sayano-Shusenskaya dam on the Yenisey River, USSR. Under construction, it is designed to bear a load of 20,160,000 tons from a fully filled reservoir of 41,000 million cu yd capacity.

## Largest Reservoirs and Man-Made Lake

The most voluminous man-made reservoir is the Kahkovskaya Reservoir, USSR, with a volume of 147,550,000 acre-ft.

The largest artificial lake measured by surface area is Lake Volta, Ghana, formed by the Akosombo dam, completed in 1965. By 1969, the lake had filled an area of 3,275 sq mi with a shoreline 4,500 miles in length.

The completion in 1954 of the Owen Falls Dam near Jinja, Uganda, across the northern exit of the White Nile River from the lake Victoria Nyanza, marginally raised the level of that *natural* lake by adding



218.9 million acre-ft, and technically turned it into a reservoir with a surface area of 17,169,920 acres (26,828 sq mi).

The \$4 billion Tacuráí Dam will, by 1985, convert the Tocantins River in Brazil into a 1,180-mile long chain of lakes.

### **Largest Polder**

The largest of the five great polders in the old Zuider Zee, The Netherlands, will be the 149,000-acre (232.8-sq-mi) Markerwaard. Work on the 66-mi-long surrounding dike was begun in 1957. The water area remaining after the erection of the 1927-32 dam (20 mi in length) is called IJssel Meer, which will have a final area of 487.5 sq mi.

### **Largest Levees**

The most massive levees ever carried out are the Mississippi levees begun in 1717 and vastly augmented by the US Government after the disastrous floods of 1927. These extend for 1,732 miles along the main river from Cape Girardeau, Mo, to the Gulf of Mexico and comprise more than 1,000 million cu yd of earthworks. Levees on the tributaries comprise an additional 2,000 miles. The 650-mile segment from Pine Bluff, Ark, to Venice, La, is continuous.

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## **8. TUNNELS**

### **Longest Tunnel**

The longest tunnel of any kind is the NYC-W Delaware water supply tunnel begun in 1937 and completed in 1944. It has a diameter of 13 ft 6 in and runs for 105 miles from the Rondout Reservoir in the Catskill Mountains into the Hillview Reservoir, on the border line of NYC and Yonkers.

### **Road Tunnel**

The longest road tunnel is the 10.14-mile-long two-lane St Gotthard Road Tunnel from Goschenen to Airolo, Switzerland, opened to traffic on Sept 5, 1980. Nineteen lives were lost during the construction, which cost almost \$400 million since 1969.

The largest-diameter road tunnel was blasted through Yerba Buena Island in San Francisco Bay. It is 76 ft wide, 58 ft high and 540 ft long. More than 80 million vehicles cross on its two decks every year.

Excavation of the projected \$9,600,000,000 Euro-tunnel under the English Channel between Folkestone, Kent, Eng and Calais, France, was due to begin in late 1987 and to be completed by 1993. The length of the twin rail tunnels of 24 ft 11 in diameter will be 31.03 miles.

### **Railroad Tunnel**

The longest railroad tunnel is the Seikan Rail Tunnel (33.46 miles), 787 ft beneath sea level and 328 ft below the sea bed of the Tsugaru Strait between Tappi Saki, Honshu, and Fukushima, Hokkaido, Japan. Tests started on the sub-aqueous section of 14½ mi in 1964.

construction began in June 1972, the tunnel was holed through on Jan 27, 1973 (after a loss of 34 lives) and in Mar 1985 the tunneling was finished after 20 years 10 months. The cost was about \$3,750,000,000.

## Bridge-Tunnel

The longest bridge-tunnel system is the Chesapeake Bay Bridge-Tunnel, extending 17.65 miles from Virginia's eastern shore to Virginia Beach, Va. It cost \$200 million, took 42 months to complete, and opened on Apr 15, 1964. The longest bridged section is Trestle C (4.56 miles long) and the longest tunnel is the Thimble Shoal Channel Tunnel (1.09 miles).

## Canal Tunnel

The longest canal tunnel is that on the Rove Canal between the port of Marseilles, France and the Rhône River, built in 1912-27. It is 4.53 mi long, 72 ft wide and 50 ft high, involving 2¼ million cu yd of excavation.

## Subway Tunnel

The longest continuous vehicular tunnel is the Moscow Metro underground railroad line from Belyaev to Medvedkovo. It runs 19.07 mi and was completed in 1978-79.

## Irrigation, Hydroelectric and Sewerage Tunnels

The longest irrigation tunnel is the 51.5-mile-long Orange-Fish Rivers Tunnel, South Africa, begun in 1967, at an estimated cost of \$150 million. The boring was completed in Apr 1973. The lining to a minimum thickness of 9 in will give a completed diameter of 17 ft 6 in.

The Majes project in Peru involves 60.9 miles of tunnels for hydroelectric and water supply purposes. The dam is at 13,780 ft altitude.

The Chicago TARP (Tunnels and Reservoir Plan) involves 120 miles of sewerage tunneling.

## Tunneling

The longest unsupported example of a machine-bored tunnel is the Three Rivers Water Tunnel driven 30,769 linear ft with a 10.5-ft-diameter for the City of Atlanta, Ga from Apr 1980 to Feb 1982. S & M Constructors Inc of Cleveland, Ohio, achieved 179 ft in a day through the granite, schist and gneiss.

## Wind Tunnels

The largest wind tunnel is a low-speed tunnel with a closed test section measuring 40 × 80 ft, built in 1944, at Ames Research Center, Moffett Field, Calif. The tunnel encloses 900 tons of air and cost approximately \$7 million. The maximum volume of air that can be moved is 60 million cu ft per min. On July 30, 1974, NASA announced an intention to increase it in size to 80 × 120 ft for 345-mph speeds with a 135,000 hp system.

The most powerful is the 216,000-hp installation at the Arnold Engineering Test Center at Tullahoma, Tenn, opened in Sept 1956.

The highest Mach number attained with air is Mach 27 at the plant of the Boeing Company, Seattle, Wash. For periods of microseconds, shock Mach numbers of the order of 30 (22,830 mph) have been attained in impulse tubes at Cornell University, Ithaca, NY.

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## 9. SPECIALIZED STRUCTURES

### Advertising Signs

The largest neon advertising sign measures 210 × 55 ft, built for Marlboro cigarettes at Kowloon, Hong Kong, in May 1986. It contains 35,000 ft of neon tubing and weighs 126½ tons.

Broadway's largest billboard has been 11,426 sq ft in area—equivalent to 107 ft × 107 ft. Broadway's largest working sign in Times Square, NYC, in 1966, showed two 42½-ft-tall "bottles" of Haig Scotch Whisky and an 80-ft-long "bottle" of Gordon's Gin being "poured" into a frosted glass.

The largest sign advertising an American city is the 370-ft-wide HOLLYWOOD sign in the hills above Los Angeles, placed by the Hollywood Chamber of Commerce. The letters (30 × 45 ft) are crumbling, and to obtain funds for their restoration, Hugh Hefner, publisher of *Playboy*, held a party in the spring of 1979, the proceeds of which amounted to \$45,000.

The most conspicuous sign ever erected was the electric Citroën sign on the Eiffel Tower, Paris. It was switched on on July 4, 1925 and could be seen 24 miles away. It was in six colors with 250,000 lamps and 56 miles of electric cables. The letter "N" which terminated the name "Citroën" between the second and third levels measured 68 ft 5 in in height. The whole apparatus was taken down after 11 years in 1936.

An interior-lit fascia advertising sign in Clearwater, Fla, completed by Adco Sign Corp in Apr 1983 measures 1,168 ft 6½ in in length.

The most massive animated sign today is reputed to be outside the Circus Circus Hotel, Reno, Nev, named Topsy the Clown. It is 127 ft tall and weighs 44.8 tons with 1.4 miles of neon tubing. The clown's smile measures 14 ft across.

The highest advertising signs are the four Bank of Montreal logos atop the 72-story 935-ft-tall First Canadian Place Building in Toronto. Each sign, built by Claude Neon Industries Ltd measures 20 ft × 22 ft, and was lifted into place by helicopter

### Longest Breakwater

The longest breakwater protects the port of Galveston, Texas. The granite South Breakwater is 6.74 miles long.

### Cemetery

The world's largest cemetery is one in Leningrad, USSR, which contains over 500,000 of the 1,300,000 victims of the German army's siege of 1941–42.

The world's largest crematorium is at the Nikolo-Arkhangelskoye



**CREMATORIUM:** The Golden Green Crematorium, London, Eng, has performed 264,312 cremations since 1902, including a record 7,509 (an average of 20.5 per day) in 1957.

Cemetery, East Moscow, completed in March 1972. It has 7 twin furnaces and several Halls of Farewell for atheists.

### Tallest Columns

The tallest columns (as opposed to obelisks) are the 36 fluted pillars of Vermont marble in the colonnade of the Education Building, Albany, NY. Each one measures 90 ft tall and 6½ ft in base diameter.

The tallest load-bearing stone columns are those measuring 69 ft in the Hall of Columns of the Temple of Amun at Karnak, opposite Thebes on the Nile, the ancient capital of Upper Egypt. They were built in the 19th dynasty in the reign of Rameses II in c. 1270 bc.

### Largest Dome

The world's largest dome is the Louisiana Superdome in New Orleans. It has an outside diameter of 680 ft. (For more details, see *Largest Indoor Arena*.) The largest dome of ancient architecture is that of the Pantheon, built in Rome in 112 AD, with a diameter of 142½ ft.

### Doors

The largest doors are the 4 in the Vehicle Assembly Building near Cape Canaveral, Fla with a height of 460 ft. (See *Largest Scientific Building*.)

The world's heaviest door is that leading to the laser target room at Lawrence Livermore National Laboratory, Calif. It weighs 360 tons, is up to 8 ft thick and was installed by Overly.

### Largest Drydock

The largest drydock is Okopo No 1 at Choje Island in S Korea, with

a maximum shipbuilding capacity of 1,200,000 tons deadweight. It measures 1,722.4 ft long  $\times$  430 ft wide, and was completed in 1979.

## **Longest and Highest Fences**

The longest fence is the dingo-proof fence enclosing the main sheep areas of Australia. The wire fence is 6 ft high, goes 1 ft underground, and stretches for 3,437 miles, more than the distance from Seattle to NY. The Queensland State Government discontinued full maintenance in 1982, but 310 mi is now being repaired.

The tallest fences are security screens 65.6 ft high built by Harrop-Allin of Pretoria to keep out Soviet RP67 rocket missiles from fuel depots and refineries in South Africa.

## **Tallest Flagpole**

The tallest flagpole ever erected was outside the Oregon Building at the 1915 Panama-Pacific International Exposition in San Francisco. Trimmed from a Douglas fir, it stood 299 ft 7 in in height.

The tallest unsupported flagpole is the 282-ft-4-in tall steel pole weighing 120,000 lb, erected on Aug 22, 1985 at the Canadian Expo in Vancouver, Brit Columbia. It supports a gigantic hockey stick 11 ft long.

## **Tallest Fountain**

The tallest fountain is at Fountain Hills, Ariz built at a cost of \$1½ million for McCulloch Properties Inc. At full pressure of 375 lb/sq in and at a rate of 7,000 gallons/min, the 560-ft column of water weighs more than 9 tons. The nozzle speed achieved by the three 600 hp pumps is 146.7 mph.

## **Largest Ice Palace**

The largest construction project made from ice was an Ice Palace built in January 1986 in St. Paul, Minn, during its Winter Carnival. Designed by Ellerbe Associates, Inc. and built by 750 unionized construction volunteers, it used 9 thousand 700-lb blocks of ice and stood 128 ft 9 in high, the height of a 13-story building. However, as Robert Arthur Olsen, historian of the St Paul Winter Carnival points out, the 1889 palace may have been 130 ft tall, but it was not surveyed, only measured from photos.

## **Longest Jetty**

The longest deep-water jetty is the Quai Hermann du Pasquier at Le Havre, France with a length of 5,000 ft. Part of an enclosed basin, it has a constant depth of water of 32 ft on both sides.

## **Largest Kitchen**

The largest kitchen ever set up has been the Indian Government field kitchen set up in Apr 1973 at Ahmadnagar, Maharashtra, in the famine area. The kitchen daily provided 1.2 million subsistence meals.

## **Tallest Lampposts**

The tallest lighting columns ever erected are four 208 ft 4 in high



**LARGEST HEDGE MAZE:** Made of high stands of 16,180 yew trees, this maze at the Longleat Stately Home, Eng, has 1.69 mi of paths. An added attraction at the estate is the lions. (*Longleat Estate*)



**ICE PALACE:** The largest ice construction is this 9,000-ice-block, 128-ft-9-in high twin tower in St Paul, Minn made for the 1986 Winter Carnival.

made in France and installed by a British company at Sultan Qaboos Sports Complex, Muscat, Oman.

## Lighthouses

The \$23 million 328-ft-tall rock lighthouse built in 1983–85 24.8 mi southwest of L'Île d'Ouessant, Brittany, France, is visible at 40 nautical mi. With reflective clouds at optimal altitude the lighthouse is detectable in Isles of Scilly 105 mi distant.

The lights with the greatest visible range are those 1,092 ft above the ground on the Empire State Building, NYC. Each of the four-arc mercury bulbs has a rated candlepower of 450 million, visible 80 miles away on the ground and 300 miles away from aircraft. They were switched on on March 31, 1956.

The tallest lighthouse is the steel tower 348 ft tall near Yamashita Park in Yokohama, Japan. It has a power of 600,000 candles and is visible 20 mi away.

## Largest Maze

The largest maze is Il Labirinto at Villa Pisani, Stra, Italy with 4 mi of paths. Napoleon was "lost" in it in 1807. The oldest dateable representation of a labyrinth is that on a clay tablet from Pylos, Greece, from c. 1200 BC.

The largest hedge maze is at Longleat, Wiltshire, Eng with 1.69 mi of paths flanked by 16,180 yew trees. It was opened on June 6, 1978 and measures 381 × 187 ft.

## Tallest Monolith

The tallest menhir (upright rough stone found in nature) is the 425-ton Grand Menhir Brisé, now in 4 pieces, which originally stood 69 ft high at Locmariaquer, Brittany, France.

## Tallest Monuments

The tallest monument is the stainless steel Gateway to the West Arch in St Louis, completed Oct 28, 1965, to commemorate the westward expansion after the Louisiana Purchase of 1803. It is a sweeping arch, spanning 630 ft and rising to a height of 630 ft, which cost \$29 million. It was designed in 1947 by Eero Saarinen (d 1961).

The tallest monumental column commemorates the battle of San Jacinto (Apr 21, 1836), on the bank of the San Jacinto River near Houston, Tex. General Sam Houston (1793–1863) and his force of 743 Texan troops killed 630 Mexicans (out of a total force of 1,600) and captured 700 others, with the loss of 9 men killed and 30 wounded. Constructed in 1936–39, at a cost of \$1½ million, the tapering column is 570 ft tall, 47 ft square at the base, and 30 ft square at the observation tower, which is surmounted by a star weighing 220 tons. It is built of concrete, faced with buff limestone, and weighs 15,150 tons.

## Largest Prehistoric Monuments

The largest megalithic prehistoric monuments are the 28½-acre earthworks and stone circles of Avebury, Wiltshire, England rediscovered in 1646. The earliest calibrated date in the area of this

neolithic site is c. 4200 bc. The whole work is 1,200 ft in diameter with a 40-ft ditch around the perimeter and required an estimated 15 million man-hours of work.

The largest trilithons exist at Stonehenge, to the south of Salisbury Plain, Wiltshire, with single sarsen blocks weighing over 50 tons and requiring over 550 men to drag them up a 9° gradient. The earliest stage in the construction of the ditch has been dated to 2800 bc. Whether Stonehenge was a lunar calendar, a temple, a navigation school, or an eclipse-predictor is still debated.

## Naturist Resorts

The oldest naturist resort (the term "nudist camp" is deplored by naturists) is Der Freilichtpark, Klingberg, W Germany, established in 1903. The largest is the Beau Valley Country Club, Warmbaths, South Africa, extending over 988 acres with up to 20,000 visitors a year. However, 100,000 people visit the smaller Centre Helio-Marin at Cap l'Agde, southern France, which covers 222 acres.

## Obelisks

The largest standing obelisk (of Tuthmosis III's day) was 118.1 ft all when brought from Aswan, Egypt, by Emperor Constantine in 357 ad. It was repositioned in the Piazza San Giovanni in Laterane, Rome, on Aug 3, 1588. It now stands 107.6 ft tall and weighs 502.3 tons.

A heavier but unfinished and not standing obelisk remains at Aswan, probably commissioned by Queen Hatshepsut c. 1490 bc. It is 136.8 ft in length and weighs 1,289.5 tons.

The longest an obelisk has remained *in situ* is that still at Heliopolis, near Cairo, Egypt, erected by Senusret I c. 1750 bc.

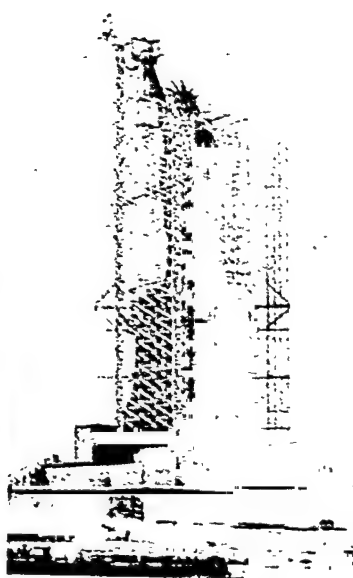


**TALLEST MONUMENT:**  
The stainless steel Gateway to the West Arch on the bank of the Mississippi in St Louis is 630 ft high and 630 ft wide. (Daily Telegraph)





**LARGEST SNOWMAN:** Built by Dartmouth students in Feb 1987, this monstrous snowman was 47½ ft tall, higher than a 4-story building. (Stuart Bratesman/Dartmouth College)



**BIGGEST SCAFFOLDING:** For the workers to repair the statue of Miss Liberty in NY Harbor 1984–86, this massive scaffolding, 315 ft high to the top of the torch, had to be built. (Frid R. Tannery)



**LARGEST SCARECROW:** Built by Boy Scouts in Nanticoke, Canada, and called "Scrubbie," this scarecrow measured 50½ ft in height and 40 ft 11 in in spread.



of Shih Huang-ti (246–210 bc), has a main-line length of 2,150 miles with a further 1,780 miles of branches and spurs, with a height of from 15 to 39 ft and up to 32 ft thick. It runs from Shanhaikuan, on the Gulf of Pohai, to Yümên-kuan and Yang-kuan and was kept in repair up to the 16th century. Some 32 miles of the Wall have been destroyed since 1966. Part of the Wall was blown up to make way for a dam in July 1979. On Mar 6, 1985 a report from China stated that a 5-year-long survey proved that the total length had been 6,200 mi.

### Water Tower

The tallest is in Union, NJ, built in 1965 to a height of 210 ft, with a capacity of 250,000 gal.

### Waterwheel

The largest waterwheel is the Mohammadiéh Noria wheel at Hama in Syria, with a diameter of 131 ft. It dates from Roman times.

### Largest Windows

The largest sheet of glass ever manufactured was one of 538.2 sq ft, or 65 ft 7 in  $\times$  8 ft 2½ in, exhibited by the Saint Gobain Company in France at the *Journées Internationales de Miroiterie* in March 1958. The largest single windows are those in the Palace of Industry and Technology at Rondpoint de la Défense, Paris, with an extreme width of 715.2 ft and a maximum height of 164 ft.

### Wine Casks

The largest wooden wine cask is the Heidelberg Tun completed in 1751 in the cellar of the Friedrichsbau Heidelberg, W Germany. Its capacity is 1,855 hectolitres (48,985 US gallons).

The oldest is in use since 1715 at Hugel et Fils (founded 1639) Riquewihr, Haut-Rhin, France by the most recent of the 12 generations of the family.

### Wine Cellar

The largest wine cellars are at Paarl, those of the Ko-operative Wijnbouwers Vereeniging (K.W.V.), near Capetown, in the center of the wine district of South Africa. They cover an area of 25 acres and have a capacity of 36 million gallons.

The Cienega Winery of the Almaden Vineyards in Hollister, Calif covers 4 acres and can house 37,300 oak barrels containing 1.83 million gallons of wine.

### Ziggurat (Stage or Temple Tower)

The largest surviving ziggurat (from the verb *zaqaru*, Babylonian, to build high) is the Ziggurat of Ur (now Muquyyar, Iraq) with a base 200 ft  $\times$  150 ft built to at least 3 stories of which only the first and part of the second now survive to a height of 60 ft. It has been dated between c. 2113 bc and c. 2096 bc.

The largest ziggurat ever built was by the Elamite King Untash c. 1250 bc, known as the Ziggurat of Choga Zanbil, 18.6 mi from Haft Tepe, Iran. The outer base was 344 ft and the fifth "box" 91.8 ft nearly 164 ft above.

## MINES

Earliest (world)	41 250 BC $\approx$ 1600	Haematite (red iron ore)	Hhohho district, Swaziland
Deepest (world) <sup>1</sup>	12,391 ft	Gold, Western Deep Levels (temp 131°F 55°C)	Carletonville, South Africa
Copper (deepest open cast)	2 590 ft	Bingham Canyon (began 1904) diameter 2.3 miles	Utah
Copper (largest underground)	356 miles tunnels	San Manuel Mine, Magma Copper Co	Arizona
Lead (largest)	>10 percent of world output	Viburnum Trend	Southeast Missouri
Gold Mining Area (largest)	>51 percent of world output	38 mines of the Witwatersrand Discovery in 1886	South Africa
Gold Mine (largest world) <sup>2</sup>	12,100 acres	East Rand Proprietary Mines Ltd	Boksburg, Transvaal, South Africa
Gold Mine (richest)	49.4 million fine oz	Crown Mines (all-time yield)	Transvaal, South Africa
Iron Mine (largest)	22,400 million tons rich ore	Lebedinsky (45-65% ore)	Kursk region, USSR
Platinum (largest)	1,000,000 oz per annum	Rustenberg Group, Impala plant	Springs, South Africa
Tungsten Mine (largest)	2,205 tons per day	Union Carbide Mount Morgan mine	near Bishop, Calif
Uranium (largest)	5,000 tons of uranium oxide	Rio Tinto Zinc open cast pit	Rössing, Namibia (SW Africa)
Spoil Dump (largest, world)	275 million cu yd	New Cornelia Tailings	Ten Mile Wash, Arizona
Quarry (largest, world)	2.81 sq mi, 2,540 ft deep, 3,700 million tons	Bingham Canyon Copper Mine	near Salt Lake City, U
Open Cast Coal Mine (largest)	1,130 ft deep, 8 sq mi area	Fortuna-Garsdorf (lignite) (began 1955)	near Bergheim, W Germ

<sup>1</sup>Sinking began in June 1957. Scheduled to reach 12,730 ft by 1992 with 14,000 ft or 2.65 mi regarded as the limit. No 3 vertical ventilation shaft is the world's deepest shaft at 9,675 ft. This mine requires 145,600 tons of air per day and refrigeration which uses all the energy it would take to make 37,000 tons of ice. An underground shift comprises 11,500 men. The deepest exploratory coal mining shaft is one reaching 6,700 ft near Thorez in the Ukrainian Donbas field, USSR, in Aug 1983.

<sup>2</sup>The world's most productive gold mine may be Muruntau, Kyzyl Kum, Uzbekistan, USSR. According to one western estimate it produces 88 tons of gold in a year. It has been estimated that South Africa has produced in 96 years (1886-1982) 36,400 tons or more than 31 percent of all gold mined since 3900 BC.

## Largest Building Demolished by Explosives

The largest was the 21-story Traymore Hotel, Atlantic City, NJ on May 26, 1972. The 600-room hotel had a cubic capacity of 6,495,500 cu ft. Controlled Demolition Inc of Towson, Md did the job.

The tallest chimney ever demolished by explosives was the Matla Power Station chimney, Kriel, South Africa, on July 19, 1981. It stood 902 ft high and was brought down by Dykon, Inc. of Tulsa, Okla for the Electrical Supply Commission of Johannesburg, S Africa.

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## 10. BORINGS AND MINES

Man's deepest penetration into the earth's crust is a geological exploratory drilling in the Kola peninsula, USSR, begun in 1970. On Dec 28, 1983, 39,370 ft or 7.45 mi was reached. Progress has understandably greatly slowed to 1,640 ft per year as the eventual target of 49,212 ft, in 1989-90 is neared. The drill bit is mounted on a turbine driven by a mud pump. The temperature at 6.83 mi was already 392°F.

The W German government announced that an 8.75-mi deep hole will be drilled into the earth's crust by 1995 at an estimated cost of \$150 million. The super hole will be drilled starting in 1988, either in the Black Forest or northeastern Bavaria.

The deepest recorded drilling into the sea bed is by the *Glomar Challenger* of the US Deep Sea Drilling Project to 5,709 ft off northwestern Spain in 1976. The deepest site is now 23,077 ft below the surface on the western wall of the Marianas Trench in May 1978.

### Largest Gas Deposits

The largest gas deposit in the world is at Urengoi, USSR, with an eventual production of 200,000 million cu meters per year through 6 pipelines, from proved reserves of 7 million cu meters. The trillionth cu meter was produced on Apr 23, 1986.

### Largest Gas Tank

The largest gas holder or tank is that at Fontaine l'Eveque, Belgium, where disused mines have been adapted to store up to 17,650 million cu ft of gas at ordinary pressure. Probably the largest conventional gas tank is that at Wien-Semmering, Vienna, Austria, completed in 1968, with a height of 274 ft 8 in and a capacity of 10.59 million cu ft.

### Oil Fields

The largest oil field is the Ghawar Field, Saudi Arabia, developed by ARAMCO, which measures 150 miles by 22 miles.

### Greatest Gusher

The greatest ever recorded blew at Alborz No 5 well near Qum, Iran on Aug 26, 1956. The uncontrolled oil gushed to a height of 170 ft at 120,000 barrels per day. It was closed after 90 days work by B. Mostofi and Myron Kinley of Texas.

The Lake View No. 1 gusher in Calif on Mar 15, 1910 may have yielded 125,000 barrels in its first 24 hours.

## Greatest Flare

The greatest gas fire ever burnt was at Gassi Touil in the Algeria Sahara from noon on Nov 13, 1961 to 9:30 a.m. on Apr 28, 1962. The pillar of flame rose 450 ft and the smoke 600 ft. It was eventually extinguished by Paul Neal ("Red") Adair (b 1932), of Houston, Tex, using 550 lb of dynamite. His fee was understood to be about \$1 million.

## Wells

The deepest water well is the Stensvad Water Well 11-W1 7,320 ft deep, drilled by the Great Northern Drilling Co Inc in Rosebud County, Mont in Oct-Nov 1961.

The Thermal Power Co geothermal steam well begun in Sonoma County, Calif in 1955 is now down to 9,029 ft.

## Oil Platforms

The world's most massive oil platform is the *Stratford B* Concrete Gravity-base platform built at Stavanger, Norway, and operated by Mobil Exploration Norway Inc until Dec 31, 1986. Tow-out to its permanent field began on Aug 1, 1981, and it was the heaviest object ever moved—899,360 tons ballasted weight. She was towed by 8 tugboats with a combined power of 115,000 hp. The height of the concrete structure is 670 ft and the overall height 890 ft. It thus weighs almost three times the weight of each of the towers of the World Trade Center (324,800 tons).

The tallest production platform is the 1,132-ft-tall Shell Cognac platform built in 1976 and placed outside the Mississippi River (Louisiana) delta.

## Greatest Oil Spill

The slick from the Mexican marine blow-out beneath the drilling rig *Ixtoc 1* in the Bay of Campeche, Gulf of Mexico on June 3, 1979, reached 400 miles by Aug 5, 1979. It eventually was capped on Mar 24, 1980, after a loss of 3 million barrels.

The worst oil spill in history was 260,000 tons of oil from the super-tankers *Atlantic Empress* and *Aegean Captain* when they collided off Tobago on July 19, 1979.

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## Chapter 8

# The Mechanical World

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### 1. SHIPS

Aborigines are thought to have been able to cross the Torres Strait from New Guinea to Australia, then at least  $43\frac{1}{2}$  miles across, as early as 40,000 bc. They are believed to have used double canoes. An 18-in paddle found at Star Carr, North Yorkshire, England, has been dated to c. 7600 bc.

The earliest surviving "vessel" is a pinewood dugout found in Pesse, Netherlands, now in the Provincial Museum, Assen, dated to c. 6315 bc  $\pm$  275.

The oldest surviving boat is the 27-ft-long,  $2\frac{1}{2}$ -ft-wide wooden eel-catching canoe discovered at Tybrind Vig on the Baltic island of Funen which dates back to c. 4490 bc.

The oldest shipwreck ever found is one of a Cycladic trading vessel located off the islet of Dhokos, near the Greek island of Hydra, reported in May 1975 and dated to 2450 bc  $\pm$  250.

#### Earliest Power Vessels

Propulsion by steam engine was first achieved when in 1783 the Marquis Jouffroy d'Abbans ascended a reach of the Saône River near Lyons, France in the 180-ton paddle steamer *Pyroscaphe*.

The tug *Charlotte Dundas* was the first successful power-driven vessel. She was a stern paddle-wheel steamer built for the Firth of Clyde Canal, Scotland, in 1801-02 by William Symington (1763-1831), using a double-acting condensing engine constructed by James Watt (1736-1819).

The screw propeller was invented and patented by the Kent, England, farmer Sir Francis Pettit Smith (1808-71) in 1836.

#### Oldest Vessels Afloat

The oldest active steam ship is the *Skibladner*, which has plied Lake Mjøsa, Norway, since 1856. Originally built in Motala, Sweden, she has had two major refittings.

The oldest mechanically propelled boat of certain date is the 48-ton Bristol steam-driven dredger or drag-boat *Bertha* of 50 ft, designed by I. K. Brunel (1806-59) in 1844 and afloat in the custody of the Exeter Maritime Museum, Devon, England.

G. H. Pattinson's 40-ft steam launch *Dolly*, raised after 67 years



from Ullswater, England in 1962, and now on Lake Windermere, also probably dates from the 1840's.

## Sailing Ships

The largest sailing vessel ever built was the *France II* (5,806 gross tons), launched at Bordeaux in 1911. The *France II* was a steel-hulled, 5-masted barque (square-rigged on 4 masts and fore and aft rigged on the aftermost mast). Her hull measured 418 ft overall. Although principally designed as a sailing vessel with a stump topgallant rig, she was also fitted with two steam engines. She was wrecked off New Caledonia in 1922.

The only 7-masted sailing vessel ever built was the 375.6-ft-long *Thomas W. Lawson* (5,218 gross tons), built at Quincy, Mass in 1902. She was lost in the English Channel on Dec 15, 1907.

## Largest Junks

The largest junk on record was the seagoing *Cheng Ho*, flagship of Admiral Cheng Ho's 62 treasure ships, of c. 1420, with a displacement of 3,100 tons and a length variously estimated up to 538 ft and believed to have had 9 masts.

A river junk 361 ft long, with treadmill-operated paddle wheels, was recorded in 1161 AD. A floating fortress 600 ft square, built by Wang Chun on the Yangtze, took part in the Chin-Wu river war, c. 280 AD. Present-day junks do not, even in the case of the Chiangsu traders, exceed 170 ft in length.

## Earliest Turbine

The first turbine ship was the *Turbinia*, built in 1894, at Wallsend-on-Tyne, England, to the design of Charles Algernon Parsons (1854-1931). The *Turbinia* was 100 ft long and of 44½ tons displacement with machinery consisting of three steam turbines totaling about 2,000 shaft hp. At her first public demonstration in 1897 she reached a speed of 34.5 knots (39.7 mph).

## Largest Human-Powered Ships

The largest human-powered ship was the giant *Tessarakonteres* 3-banked catamaran galley with 4,000 rowers built for Ptolemy IV c. 210 BC in Alexandria, Egypt. It measured 420 ft with up to 8 men to an oar of 38 cubits (57 ft) in length.

The longest canoe is the 117-ft-long, 20-ton Kauri wood Maori war canoe *Nga Toki Matawhaorua*, built with adzes at Kerikeri Inlet, New Zealand in 1940 to hold a crew of 70 or more. The "Snake Boat" *Nadubhagom* 135 ft long from Kerala, southern India has a crew of 109 rowers and 9 "encouragers."

## Longest Day's Run Under Sail

The longest day's run calculated for any commercial vessel was one of 462 nautical miles (532.0 statute miles) by the clipper ship *Champion of the Seas* (2,722 registered tons) of the Liverpool Black Ball Line running before a northwesterly gale in the south Indian Ocean under the command of Capt. Alex Newlands in 1854. The

elapsed time between the fixes was 23 hours 17 min giving an average of 19.97 knots.

## Largest Wooden Ships

The heaviest wooden ship ever built was the *Richelieu*, 333 ft 8 in long and of 9,558 tons, launched in Toulon, France, on Dec 3, 1873. The longest modern wooden ship ever built was the New York-built *Rochambeau* (1867-72), formerly *Dunderberg*. She measured 377 ft 4 in overall. It should be noted that the biblical length of Noah's Ark was 300 cubits or, at 18 in to a cubit, 450 ft (but see *Largest Junks*).

## Largest Sails

Sails are known to have been used for marine propulsion since 3500 bc. The largest spars ever carried were those in the British Royal Navy battleship *Temeraire*, completed at Chatham, Kent, on Aug 31, 1877. She was broken up in 1921. The fore and main yards measured 115 ft in length. The foresail contained 5,100 sq ft of canvas, weighing 2 tons, and the total sail area was 25,000 sq ft. H M Battleship *Sultan* was ship-rigged when completed at Chatham, Kent, Eng, on Oct 10, 1871 and carried 34,100 sq ft of sails plus 15,300 sq ft of stunsails. She was not finally broken up until 1946.

## Fastest Atlantic Crossing

A 65-ft powerboat, the *Virgin Atlantic Challenger II*, sailed by Richard Branson, a 35-year-old US businessman and his crew of 6, set a world record in June 1986 for all types of boats, by taking only 3 days 8 hours 31 min from NYC to Bishop's Rock off the coast of Eng. This beat the record held by the 51,988 gross ton transatlantic liner *United States* by 2 hours 11 min.

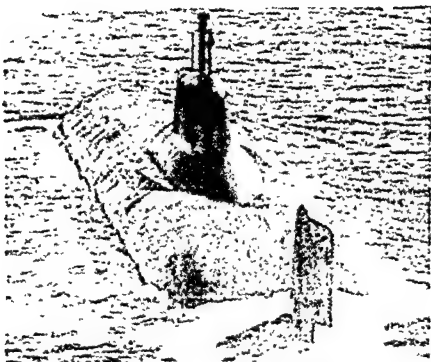
## Fastest Pacific Crossing

The fastest crossing of the Pacific Ocean (4,840 nautical miles) was 6 days 1 hour 27 min by the containership *Sea-Land Commerce* (50,315 tons) from Yokohama, Japan to Long Beach, Calif, June 30-July 6, 1973, at an average speed of 33.27 knots (38.31 mph).

## Largest Passenger Liner

The original *Queen Elizabeth*, no longer afloat, was the heaviest ship ever built with 83,673 gross tons originally (later 82,998), but a length of 1,031 ft, some 4 ft shorter than the *Norway*. Her last passenger voyage ended on Nov 15, 1968. In 1970 she was removed to Hong Kong to serve as a floating marine university and renamed *Seawise University*. On Jan 9, 1972 she was set on fire by 3 simultaneous outbreaks. The gutted hull was cut up and removed by 1978. (*Seawise* was a pun on the new owner's initials—C. Y. Tung (1911-1982):

The largest liner afloat and longest liner ever built is the *Norway* of



**MOST DANGEROUS NUCLEAR SUBMARINE**  
 This USSR Typhoon class sub is one of 3 of the largest known. Secretly built at a covered shipyard, this 33,000-ton sub carrying 20 SS NX 20 missiles, each with 7 independently targeted warheads, was caught on the surface by a British photographer. With its power, it alone can obliterate any country within 5,000 mi of it.



**FASTEST WARSHIP** is Hovercraft, the USN US-100B, a 78-ft 112-ton vehicle that sped 13.9 mph on Chesapeake Bay in 1980

1,202 19 gross tons and 1,035 ft 7½ in in length. She was built as the *Rance* in 1961 and renamed after purchase in June 1979 by Knut Hovstad of Norway. Her second maiden voyage was from Southampton on May 7, 1980.

The *Queen Elizabeth II*, of 67,140 gross tons with an overall length of 963 ft, set a "turn-around" record of 5 hours 47 min in NYC on Nov 21, 1983. Her 96-day 1986 world cruise cost \$146,895 per person in the penthouse suite. Her original steam turbine machinery was replaced with diesel electric units in Apr 1987.

## largest Battleships

The largest battleship now is the USS *New Jersey*, with a full-load displacement of 65,000 tons and an overall length of 887 ft 7 in, actually 4 in longer than its sister ships, the *Iowa*, the *Missouri*, and the

Wisconsin, which at the time of commissioning in 1941 displaced 45,000 tons. She was on active service until 1960 with 16-inch guns, capable of firing projectiles on 100 mi (160 km) off the Lebanon coast. Dec 14, 1981. The USS Iowa was reactivated in May 1984 at a cost of \$475 million.

The Japanese battleships *Yamato* (completed on Jan 16, 1941) and *Musashi* (sunk southwest of Kyushu by US planes on Apr 7, 1945) and *Yamato* (sunk in the Philippine Sea by 11 bombs and 15 torpedoes on Feb 2, 1944) were the largest battleships ever commissioned with a full-load displacement of 72,809 tons. With overall length of 837 ft, a beam of 127 ft and a full-load draught of 35 ft they mounted nine 18.1-in guns in three triple turrets. Each gun weighed 150 tons and was 75 ft in length, firing a 3,200-lb projectile.

## Longest, Fastest and Deepest Submarines

The largest submarines are of the USSR Typhoon class code-named Oscar. The launch of the first at the secret covered shipyard at Severodvinsk on the White Sea was announced by NATO in Sept 27, 1980. It is believed to have a dived displacement of 55,000 tons, and measure 557.6 ft overall and be armed with 20 SS-N-3 missiles with a 5,000-nautical-mile range, each with 7 warheads. By 1987, two others being built in Leningrad will also be operational each carrying 140 warheads.

The Russian Alfa-class nuclear-powered submarines have a maximum speed of 42 knots (about 48 mph). With use of titanium steel they are believed to be able to dive to 1,500 ft (457 m) and over Leningrad's naval yard on June 8, 1983 showed they were lengthened and are now 260.1 ft long.

The two US Navy vessels able to descend 1,000 ft are the *Trieste II* (DSV 1) of 303 tons, recommissioned in Nov 1975 and the DSV 2 (deep submergence vessel) USS *Albatross* (SSN-575) which was reconstructed from the record-breaking bathyscaphe *Triton* but without the Krupp-built sphere, which enabled it to descend to 35,820 ft.

## Largest Aircraft Carriers

The warships with the largest full-load displacement in the world are the Nimitz class US Navy aircraft carriers USS *Nimitz*, *Theodore Roosevelt*, *Dwight D. Eisenhower*, *Abraham Lincoln*, and *Carl Vinson* at 91,487 tons. They are 1,092 ft in length overall and have a speed well in excess of 30 knots (35 mph) with their nuclear-powered 260,000 shaft hp geared steam turbines. They have to be refueled after about 900,000 miles steaming. Their complement is 6,300. The total cost of the *Abraham Lincoln*, laid down at Newport News, in Dec 1984 will exceed (together with the *George Washington*) \$3¼ billion, excluding the 90-plus aircraft carried. The USS *Enterprise* is, however, 1,102 ft long and thus still the longest warship ever built.

## Most Landings

The greatest number of plane landings on an aircraft carrier in one day was 602 achieved by Marine Air Group 1 of the 1st Marine Air Force aboard the USS *Malanikou* on May 22, 1967, between 6 a.m. and 5 p.m.

## Fastest Destroyer

The highest speed attained by a destroyer was 45.25 knots (51.84 mph) by the 3,120-ton French destroyer *Le Terrible* in 1935. She was built in Blainville and powered by four Yarrow small-tube boilers and two Rateau geared turbines giving 100,000 shaft hp. She was removed from the active list in 1957.

## Largest Hydrofoil

The largest naval hydrofoil is the 212-ft-long *Plainview* (347 tons full load), launched by Lockheed Shipbuilding and Construction Company at Seattle, Wash June 28, 1965. She has a service speed of 50 knots (57 mph).

Three 165-ton Supramar PTS 150 Mk. III hydrofoils, carrying 250 passengers at 40 knots, ply the Malmö-Copenhagen crossing between Sweden and Denmark. They were built by Westermoen Hydrofoil Ltd of Mandal, Norway.

A 500-ton wing ground effect vehicle capable of carrying 900 tons has been reported in the USSR.

## Containerships

Shipborne containerization began in 1955 when the tanker *Ideal X* was converted by Malcolm McLean (US). She carried containers only on deck.

The largest containerships are the 12 built by US Lines in Korea in 1984-85. They are capable of carrying 4,482 TEU (the equivalent of 22 ft containers) and have a gross tonnage of 57,075. They are named *American Alabama*, etc, for 11 other states.

## Largest Barges

Four RoRo (roll-on roll-off) barges, of the *El Rey* class of 16,700 tons and 580-ft length each, built by FMC Corp of Portland, Ore and owned by the Crowley Maritime Corp of San Francisco are currently the largest. They carry up to 376 trailer trucks each with tri-level loading, between Florida and Puerto Rico.

## Largest Tanker

The largest tanker and ship of any kind is the 624,038 tonnage *Seawise Giant* converted for C. Y. Tung in 1979 (The name is a pun on the owner's initials). She is 1,504 ft long with a beam of 225 ft 11 in, has a draught of 80 ft 9 in. She was converted by Nippon Kokan in 1980 by adding a 265-ft-8-in midship section.

## Largest Cargo Vessel

The largest vessel capable of carrying dry cargo is the 365,000-dwt ore carrier *Berge Stahl*, built in Korea for the Norwegian owner Sigbjørge Dy. It has a length of 1,125 ft, a beam measuring 208 ft and was launched on Nov 5 1986.

## Largest Whale Factory

The largest whale factory ship is the USSR's *Sovietskaya Ukraina*

(32,034 gross tons), with a summer deadweight of 51,520 tons completed in Oct 1959. She has a 714½ ft length and 84 ft 7 in beam.

### Most Powerful Tug

The most powerful tug is *Smit Singapore* commissioned in Apr 1984 by Smit Tak International, of 22,000 hp and 189 tons bollard pull at full power. She is 246.7 ft long and 51.5 ft wide:

### Largest Propeller

The largest ship propeller is the triple-bladed screw of 36 ft 1 in diameter made by Kawasaki Heavy Industries Ltd on Mar 17, 1982 for the 208,000-ton bulk-ore tanker *Hoei Maru*.

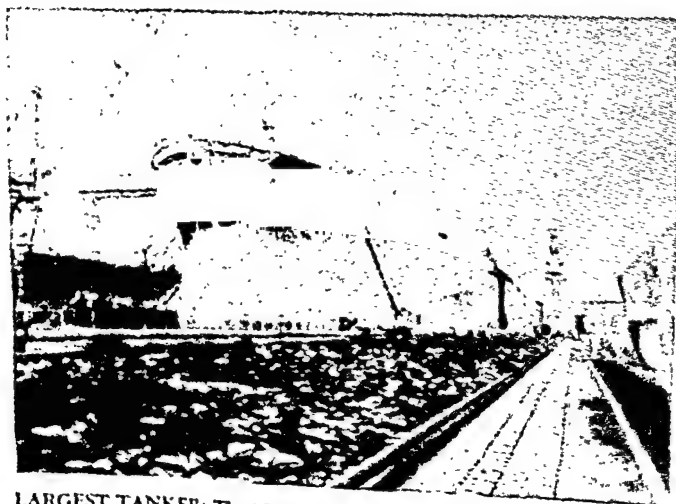
### Most Powerful Dredger

The most powerful dredger is the 468.4-ft-long *Prins der Nederlanden* of 10,586 grt. Using two suction tubes, she can dredge 22,400 tons of sand from a depth of 115 ft in less than one hour.

### Most Powerful Icebreaker

A 61,000-ton nuclear-powered barge-carrying merchantman designed for work along the USSR's Arctic coast was completed in early 1982 and is known to be designed to break ice.

The longest purpose-built icebreaker is the 25,000-ton 460-ft-long *Rossiya*, powered by 75,000 hp nuclear engines built in Leningrad and completed in 1985. A new Can \$500 million, 100,000 hp, 636-ft-long icebreaker of the Polar Class 8 was ordered by the Canadian government in Oct 1985.



**LARGEST TANKER:** The "Seawise Giant," more than ¼ mi long, was converted in 1980 for the Japanese owner, C. Y. Tung.



The largest converted icebreaker has been the 1,007-ft-long SS *Manhattan* (43,000 shp), which was converted by the Humble Oil Co. into a 150,000-ton icebreaker with an armored prow 69 ft 2 in long. She made a double voyage through the North-West Passage in Arctic Canada from Aug 24 to Nov 12, 1969. The North-West Passage was first navigated by Roald Amundsen (Norway) in the sealing sloop *Gjøa* on July 11, 1906.

### Largest Car Ferry

The largest car and passenger ferry is the 37,800-gross-ton M/S *Olympia* which entered service across the Baltic Sea between Helsinki and Stockholm on Apr 28, 1986. Built in Abo, Finland for the Viking Line, she is 581 ft long, 95 ft in the beam and can carry 2,500 passengers and 600 cars. The 9700-dwt 21-knot *Railship II* went into service on the Baltic run in Nov 1984. She can carry 88 rail cars 65 ft 7 in long, measures 611 ft 10 in overall and was built for H. M. Gehrckens of Hamburg, W. Germany.

### Most Expensive Yacht

The refit of the \$25 million 470-ft-long Saudi Arabian royal yacht *Abdul Aziz*, built in Denmark, was completed on June 22, 1984 at Vospers Yard, Southampton, Eng at a cost of \$11.25 million.

### Fastest Building of a Ship

The fastest-ever building time for a major ship was 4 days 15 hours in the case of the 10,920-ton displacement *Robert E. Peary* at Kaiser's Yard, Portland, Ore, from Nov 8 (keel laid) to launch on Nov 12, 1942. She was operational on Nov 15 and was No 440 of the fleet of 2,742 11.6-knot Liberty Ships built in 18 US shipyards from Sept 27, 1941.

### Largest River Boat

The largest inland river boat is the 378-ft-long SS *Admiral* now undergoing a 6-year \$26.7 million renovation at St Louis, Mo as a Mississippi floating "entertainment center."

### Largest Collision

The closest approach to an irresistible force striking an immovable object occurred on Dec 16, 1977, 22 miles off the coast of southern Africa, when the tanker *Venail* (330,954 dwt) struck her sister ship *Venpet* (330,869 dwt).

### Survival after Shipwreck

The longest recorded survival alone on a raft is 133 days (4½ months) by Second Steward Poon Lim (b Hong Kong) of the UK Merchant Navy, whose ship, the SS *Ben Lomond*, was torpedoed in the Atlantic 565 miles west of St Paul's Rocks at Lat 00° 30' N and Long 38° 45' W at 11:45 A.M. on Nov 23, 1942. He was picked up by a Brazilian fishing boat off Salinópolis, Brazil, Apr 5, 1943, and was able to walk ashore. In July 1943 he was awarded the British Empire Medal, and now lives in NYC.

Maurice and Marilyn Bailey survived 118½ days in an inflatable





speed in excess of the permitted cross-Channel operating speed of 65 knots.

The 3,000-ton US Navy Large Surface Effect Ship (LSES) was built by Bell Aerospace under contract from the Department of Defense in 1977-81.

The greatest altitude a Hovercraft is operating at is on Lake Titicaca, Peru, where since 1975 an HM2 Hoverferry has been hovering 12,506 ft above sea level.

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## 2. ROAD VEHICLES

### CARS

#### Most Cars

For 1984 it was estimated that the US, with 168,607,000 vehicles, passed 37.9 percent of the total world stock of 411,113,000.

In 1986, the US auto industry is estimated to have sold an all-time retail record of 16,300,000 vehicles, including 8,214,671 domestically-built cars with General Motors selling 4,532,798 of the total.

#### Earliest Automobiles

The earliest car of which there is record is a 2-ft.-long steam-powered model, constructed by Ferdinand Verbiest (d 1687), a Belgian Jesuit priest, which he described in his *Astronomia Europaea*. His 1668 model was possibly inspired either by Giovanni Branca's description of a steam turbine published in 1629, or by writings on "fire carts" during the Chu dynasty (c. 800 bc).

The earliest full-scale automobile was the first of two military steam tractors completed at the Paris Arsenal in 1769 by Nicolas-Joseph Cugnot (1725-1804). This vehicle reached about 2¼ mph. His second, larger tractor, completed in 1771, today survives in the *Conservatoire National des Arts et Métiers* in Paris.

The first passenger-carrying automobile was a steam-powered road vehicle carrying 8 passengers built by Richard Trevithick (1771-1833). It first ran on Dec 24, 1801 in Cornwall, Eng.

The Swiss Isaac de Rivaz (d 1828) built a carriage powered by his "explosion engine" in 1805.

The first practical internal-combustion-engined vehicle was built by a Londoner, Samuel Brown (patented Apr 25, 1826) whose 4-hp 2-cylinder atmospheric-gas 88-liter engined carriage climbed Shooters Hill, Blackheath, Kent, England in May 1826.

#### Earliest Gasoline-Driven Cars

The first successful gasoline-driven car, the Motorwagen, built by Karl-Friedrich Benz (1844-1929) of Karlsruhe, ran at Mannheim, Germany in late 1885. It was a 560-lb 3-wheeler reaching 8-10 mph. Its single-cylinder 4-stroke chain-drive engine (bore 91.4 mm, stroke 160 mm) delivered 0.85 hp at 200 rpm. It was patented on Jan 29,

## FASTEST CARS

<i>Category</i>	<i>mph</i>	<i>Car</i>	<i>Driver</i>	<i>Place</i>	<i>Date</i>
Jet-Engined (official)	633.468	Thrust 2	Richard Noble (GB)	Black Rock Desert, Nevada	Oct 4, 1983
Rocket-Engined (official)	622.287	Blue Flame	Gary Gabelich	Bonneville, Utah	Oct 23, 1970
Wheel-Driven (turbine)	429 311	Bluebird	Donald Campbell (UK)	Lake Eyre, Australia	July 17, 1964
Wheel-Driven (multi-piston engine)	418 504	Goldenrod	Robert Summers	Bonneville, Utah	Nov 12, 1965
Wheel-Driven (single-piston engine)	357 391	Herda-Knapp-Milodon	Bob Herda	Bonneville, Utah	Nov 2, 1967
Rocket-Engined (unofficial)*	739.666	Budweiser Rocket	Stan Barrett	Edwards Air Force Base, California	Dec 17, 1979

\* This published speed of Mach 1.0106 is *not* officially sanctioned by the USAF whose Digital Instrumented Radar was not calibrated or certified. The radar information was *not* generated by the vehicle directly but by an operator aiming the dish by means of a TV screen. To claim a speed to 6 significant figures appears quite unsustainable.

1886. Its first 1-km road test was reported in the local newspaper of June 4, 1886, under the news heading "Miscellaneous." Two were built in 1885 of which one has been preserved in "running order" at the Deutsches Museum, Munich.

### Earliest Registrations

The world's first plates were probably introduced by the Parisian police in France in 1893. The first American plates were in 1901 in NY. Registration plates were introduced in Britain in 1903. The original AI plate was secured by the 2nd Earl Russell (1865-1931) for his 12-hp Napier. This plate, willed to Trevor Laker of Leicester, was sold in Aug 1959, for £2,500 (then \$7,000) in aid of charity. License plate No. 3 was reported sold at a Hong Kong government auction for US \$131,600 in Jan 1984.

### Fastest Road Cars

Various detuned track cars have been licensed for road use but are not purchasable production models. Manufacturers of very fast and very expensive models understandably limit speed tests to stipulated engine revs. The fastest current manufacturer's *claim* (as opposed to independent road tests) for any road car is the Porsche 959, a limited-edition car announced in Apr 1986 with a top speed of 205 mph at 7500 rpm. The highest ever *tested* speed is 190.1 mph for the Lamborghini Countach QV 5000 S.

The highest road-tested acceleration reported is 0-60 mph in 4.1 sec. for an MG Metro 6R4 International Rally Car in 1986.

### Largest Cars

Of cars produced for private road use, the largest has been the Bugatti "Royale" Type 41, known as the "Golden Bugatti," of which only 6 (not 7) were made at Molsheim, France by the Italian, Ettore Bugatti, and all survive. First built in 1927, this car has an 8-cylinder engine of 12.7 liter capacity, and measures over 22 ft in length. The hood is over 7 ft long.

Of custom-built cars the longest is a 16-wheeled 60-ft-long Cadillac called "The American Dream" (see photo and caption on page 290).

### Fastest Diesel-Engined Car

The diesel-engined prototype 230-hp 3-liter Mercedes C 111/3 attained 203.3 mph in tests on the Nardo Circuit, Italy, Oct 5-15, 1978, and in Apr 1978 averaged 195.398 mph for 12 hours, so covering a world record 2,399.76 mi.

### Most Expensive Special Cars

The most expensive car to build was the Presidential 1969 Lincoln Continental Executive delivered to the US Secret Service on Oct 14, 1968. It has an overall length of 21 ft 6.3 in with a 13-ft-4-in wheelbase and, with the addition of 2 tons of armor plate, weighs 12,000 lb. The cost for research, development and manufacture was estimated at \$500,000, but it is *rented* for a mere \$5,000 per annum. Even if all four tires were to be shot out it can travel at 50 mph on inner rubber-edged steel discs.







Gary Ruddock, Jim Timmins, and Danny Upshaw) on Sept 4-5, 1983 at Erbsville Kartway, Waterloo, Ont, Canada. The kart was 5 hp 140 cc Honda-engined.

## Two-Wheel Driving (Wheelies)

Gilbert Bataille of Paris drove a Leyland T45 Road Runner Truck on two side wheels for 2.864 mi at the British Truck Grand Prix, Silverstone, Eng. on Aug 17, 1986.

Steve Murty drove a Multi-Part Skytrain truck on its rear wheels for 1.049 ft at the same track on Aug 17, 1986. The 60-ton truck was powered by a 500-bhp Cummins turbo-charged 14-litre engine and had a ZF-Ecomat hp 600 5-speed automatic gearbox.

A speed of 83.8 mph was achieved in a standard Volvo 760 at Andersrop, Sweden, on May 18, 1986 by Goran Eliason of Boras, Sweden.

## Round-the-World Driving

The fastest circumnavigation embracing more than an equator's length of driving (24,901.47 road miles) is one in 74 days 1 hour 11 min by Garry Sowerby (driver) and Ken Langley (navigator) of Canada from Sept 6 to Nov 19, 1980 in a Volvo 245 westward from Toronto through 4 continents and 23 countries. The distance covered was 26,738 miles.

The folk-singers Manfred Müller and Paul-Ernst Luhrs drove around the world covering 78 countries and 174,000 mi between Mar 30, 1964 and Apr 23, 1984. They started and finished in Bremerhaven, W Germany.

The first traverse of the world's greatest land mass (Afro-Eurasia) was achieved by Richard Pape, who, driving south, left the North Cape of Norway in an Austin A90 on July 28 and arrived in Cape Town, S Africa, on Oct 22, 1955 with the milometer recording 17,500 mi after 86 days. The speed record for the same route was set by Ken Langley and Garry Sowerby of Canada driving north in 28 days 13 hours 10 min for 12,531 mi Apr 4-May 2, 1984.

## Solar-Powered Vehicle

The highest speed attained under IHPVA (International Human Powered Vehicle Association) rules by a solely solar-powered vehicle is 24.74 mph at Bellflower, Calif. on July 1, 1984 by *Sunrunner*, designed by Joel Davidson and Greg Johanson of Photovoltaic Power Systems.

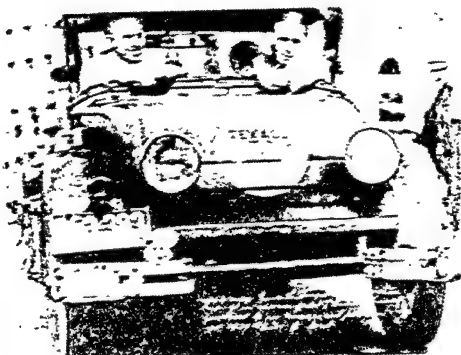
## Steam Cars

On Aug 19, 1985 Robert E. Barber broke the 79-year-old steam-car record, driving no. 744, *Steamin' Demon*, at 145.607 mph on the Bonneville Salt Flats, Utah. It was built by the Barber-Nichols Engineering Co.

## Longest Skid Marks

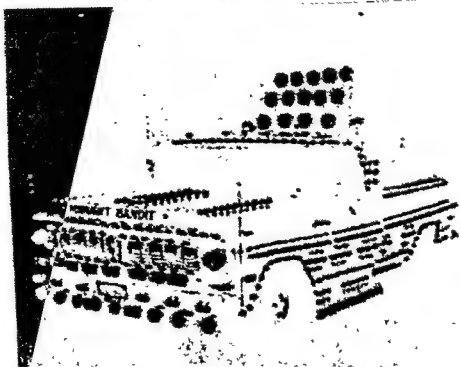
The longest recorded skid marks on a public road were 950 ft long, left by a Jaguar car involved in an accident on the M.1 near Luton, Bedfordshire, England June 30, 1960. Evidence given in the High





**BUILT TO DRIVE BACKWARDS:** This 1929 Ford Model A roadster may look funny with its headlights in the rear, but it carried its owners, Charles Creighton and James Hargis 7,180 miles from NYC to LA and back entirely in reverse gear in just 42 days.

**MOST ILLUMINATED TRUCK:** "Midnight Bandit," the creation of Todd Pellegrini of Hummelstown, Pa., has 1,900 lights connected by over 5,000 ft of wire and 5 toggle switches to three 50-amp alternators and five 12-volt batteries. It took over 5 years to fully equip this 1971-F250 Ford Explorer camper truck.



Court case *Hurlock v. Inglis and others* indicated a speed "in excess of 100 mph" before the application of the brakes.

The skid marks made by the jet-powered *Spirit of America*, driven by Craig Breedlove, after the car went out of control at Bonneville Salt Flats, Utah Oct 15, 1964, were nearly 6 miles long.

## Driving in Reverse

Charles Creighton (1908-70) and James Hargis of Maplewood, Mo drove their Ford Model A 1929 roadster in reverse from NYC to Los Angeles (3,340 miles), July 26-Aug 13, 1930 *without* stopping the engine once. They arrived back in NY on Sept 5, again in reverse, thus completing 7,180 miles in 42 days.

The highest average speed attained in any non-stop reverse drive exceeding 500 miles was achieved by Gerald Hoagland, who drove a 1969 Chevrolet Impala 501 miles non-stop in 17 hours 38 min at Chemung Speed Dome, NY July 9-10, 1976 to average 28.41 mph.

Brian "Cub" Keene and James "Wilbur" Wright drove their Chevrolet Blazer 9,031 mi in 37 days (Aug 1-Sept 6, 1984) through 16 US states and Canada. Though it was prominently named "Stuck

in Reverse." law enforcement in Okla refused to believe it and insisted they drive in reverse reverse, i.e. forwards, out of the state.

## Longest Tow

The longest tow on record was one of 4,759 miles from Halifax, Nova Scotia to Canada's Pacific coast, when Frank J. Elliott and George A. Scott of Amherst, Nova Scotia persuaded 169 passing motorists in 89 days to tow their Model T Ford (in fact, engine-less) to win a \$1,000 bet on Oct 15, 1927.

## Taxis

The largest taxi fleet is that in Mexico City, with 60,000 "normal" taxis, plus minibuses (*peseros*) (communal "fixed route" taxis) and *settas* (airport taxis) in mid-1984.

The longest fare on record is one of 7,533 miles through 10 countries from Marble Arch, London, England, from Sept 19 to Oct 18, 1981. The trip was sponsored for charity and the driver was Stephen Tillyer.

Francis Edward Kenyon (b 1904) was continuously licensed as a cab driver in Manchester, Eng, for 57 years 36 days, 1924-1981.

## Largest Vehicles and Windshield Wipers

The most massive vehicle ever constructed is the Marion 8-caterpillar crawler used for conveying *Saturn V* rockets to their launching pads at the John F. Kennedy Space Center, Cape Canaveral, Fla. It measures 131 ft 4 in by 114 ft and two of them built at the same time cost \$12,300,000. The loaded train weight is 9,000 tons. Its windshield wipers with 42-in blades are the world's largest.

The most massive automotive land vehicle is "Big Muscle," the 10,700-ton mechanical shovel built by Bucyrus-Erie for the Musk mine. It is 487 ft long, 151 ft wide and 222 ft high with a grab capacity of 325 tons.

The longest vehicle ever built is the Arctic Snow Train now owned by the world-famous wire-walker Steve McPeak (see Chapter 11). This 54-wheeled 572-ft-long vehicle was built by R G Le Tourneau, Inc of Longview, Tex for the US Army. Its gross train weight is 400 tons with a top speed of 20 mph and it was driven by a crew of 6 when used as an "Overland Train" for the military. McPeak repaired it and every punctured tire lone-handed in often sub-zero temperatures in Alaska. It generates 4,680 shp and has a capacity of 7,226 gallons.

Sussex, in England. A steam-powered bus named *Royal Patent* ran between Gloucester and Cheltenham, England, for 4 months in 1831.

The longest regularly scheduled bus route is by "Across Australia Coach Lines," which inaugurated a regularly scheduled service between Perth and Brisbane on Apr 9, 1980. The route is 3,389 miles and takes 75 hours 55 min.

The longest buses are the 12-ton, 76-ft-long articulated buses, with 121 passenger seats and room for an additional 66 "strap-hangers," built by the Wayne Corp of Richmond, Ind for use in the Middle East.

The largest bus fleet consists of 6,580 single-deck buses in Rio de Janeiro, Brazil in 1983.

## **Largest Dump Truck**

The largest dump truck is the Terex Titan 33-19 manufactured by the Terex Division of the General Motors Corp. It has a loaded weight of 604.7 tons and a capacity of 350 tons. When unloading, its height is 56 ft. The 16-cylinder engine delivers 3,300 hp and the fuel tank holds 1,560 gallons. It went into service in Nov 1974.

## **Largest Tires**

The largest tires are manufactured in Topeka, Kans by the Goodyear for giant dump trucks. They are 11 ft 6 in in diameter, weigh 500 lb and cost \$75,000. A tire 17 ft in diameter is believed to be practical upper limit.

## **rgest Load**

On July 14-15, 1984, John Brown Engineers & Contractors BV (g) moved the Conoco Kotter Field production deck with a roll-out ight of 4,193 tons for the Continental Netherlands Oil Company of idsenhage, Netherlands.

## **rgest and Most Powerful Tractor**

The largest tractor is the \$459,000 22-ton US Dept of Agriculture de Tractive Frame Vehicle completed by Ag West of Sacramento, lif in June 1982. It measures 33 ft between its wheels which are igned to run on permanent paths, and weighs 24.1 tons.

The sport of tractor-pulling was put on a national US championship is in 1967 at Bowling Green, Ohio where the winner was "The ple Monster" built and driven by Roger E. Varns. Today there are classes ranging up to "12,200 lb unlimited "

## **ost Powerful Fire Engine**

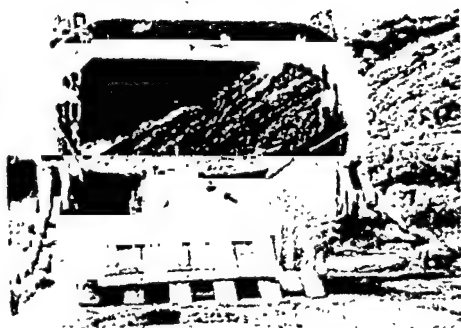
The most powerful fire appliance is the 860-hp 8-wheel Oshkosh fire ck used for aircraft fires. It can discharge 49,920 gallons of foam ough 2 turrets in just 150 sec. It weighs 66 tons.

The fastest is the Jaguar XJ12 "Chubb Firefighter," which in Nov 82 attained a speed of 130.57 mph in servicing the *Thrust 2* land ed record trials.

## **ost Powerful Wrecker**

The most powerful wrecker is the Twin City Garage and Body Shop

**MOST MASSIVE LAND VEHICLE:** "Big Muskie" is a shovel so big (grab capacity 325 tons) that it can gobble up a full-sized bulldozer in its bucket comfortably. Note arrow pointing to a man, (Alan Russell)



2.35-ton 36-ft-long 969 International M6-23 "Hulk," stationed in Scott City, MO, which can lift more than 336 tons on its short boom.

### Largest Earth Mover

The largest earth mover is the 110.2-ton T-800 built at the Lenin Tractor Works in Chelyabinsk, USSR, announced in Sept 1984.

### Lawn Mowers

The widest gang mower on record is the 5.6-ton 60-ft-wide 27-unit Big Green Machine, used by the sod farmer Jay Edgar Frick of Monroe, Ohio. It mows an acre in 60 sec.

### Amphibious Vehicle Circumnavigation

The only circumnavigation of the world by an amphibious vehicle was achieved by Ben Carlin (Australia) (d Mar 7, 1981) in an amphibious jeep "Half-Safe." He completed the last leg of the Atlantic crossing (the English Channel) on Aug 24, 1951. He arrived back in Montreal, Canada on May 8, 1958 having completed a circumnavigation of 39,000 miles over land and 9,600 miles by sea and river. He was accompanied on the transatlantic stage by his ex-wife Elinore (US) and on the long transpacific stage (Tokyo to Anchorage) by Broye Lafayette De Mente (b Mo, 1928).

### Longest Motor Trip

The longest continuous trailer tour was one of 143,716 miles by Harry B. Coleman and Peggy Larson in a Volkswagen Camper from Aug 20, 1976 to Apr 20, 1978 through 113 countries. Saburo Ouchi (b Feb 7, 1942) of Tokyo, Japan, drove 167,770 miles in 91 countries from Dec 2, 1969 to Feb 10, 1978.

### Rocket-Powered Ice Sled

The highest speed recorded is 247.93 mph by *Oxygen* driven by Sammy Miller (b Apr 15, 1945) on Lake George, NY, on Feb 15, 1981.

### Snowmobiles

Richard and Raymond Moore and Loren Matthews drove their

snowmobile 5,876 mi from Fairbanks, Alaska to Fenton, Mich, in 39 days from Feb 3-Mar 13, 1980.

The record speed for a snowmobile is 158.53 mph, set by Marv Jorgenson of Minneapolis at the St Paul Winter Festival at Lake Phelan, Minn, on Feb 3, 1985.

## MOTORCYCLES

### Earliest

The earliest internal-combustion-engined motorized bicycle was a wooden-framed machine built during October-November 1885 by Gottlieb Daimler (1834-1900) of Germany at Bad Cannstatt and first ridden by Wilhelm Maybach (1846-1929). It had a top speed of 12 mph and developed one-half of one hp from its single-cylinder 264-cc 4-stroke engine at 700 rpm. Known as the "Einspur," it was lost in a fire in 1903. The earliest factory which made motorcycles in quantity was opened in 1894 by Heinrich and Wilhelm Hildebrand and Alois Wolfmüller at Munich, Germany. In its first 2 years this factory produced over 1,000 machines, each having a water-cooled 1,488-cc twin-cylinder 4-stroke engine developing about 2.5 bhp at 600 rpm—the highest capacity motorcycle engine ever put into production.

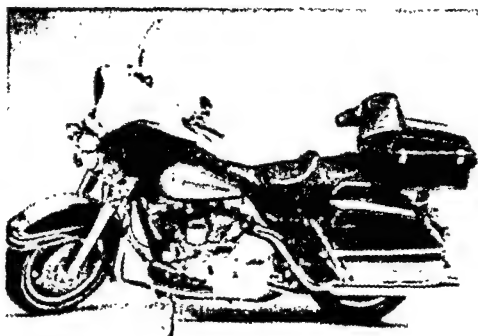
### Fastest Track Motorcycle

There is no satisfactory answer to the identity of the fastest track machine, other than to say that the current Kawasaki, Suzuki and Yamaha machines have all been geared to attain speeds marginally in excess of 186 mph under race conditions.

### Duration

The longest time a solo motorcycle has been kept in non-stop motion is 560 hours by Norberto Naummi, Foppiani Maurizio, and Roberto Ghillani, who covered 18,000 mi at an average speed of 33.69 mph in Varano de Melegani, Italy, Aug 16-Sept 8, 1986.

**MOST EXPENSIVE MOTORCYCLE:** A 4-stroke 45-degree V-Twin engine of 1340 cu capacity propels this 2-tone Harley Davidson FLHTC Electra Glide Classic costing more than \$14,000. It has a sound system with handlebar controls, 3-position rider floorboards and a seat with "floating" backrest.



## Fastest Road Motorcycle

The 115-bhp Japanese Honda V65 Magna with a liquid-cooled, in-line V4, 16-valve DoHC engine of 1,098-cc capacity has a design speed of 173 mph.

## BICYCLES AND UNICYCLES

The first design for a machine propelled by cranks and pedals, with connecting rods, has been attributed to Leonardo da Vinci (1452-1519) or one of his pupils, dated c. 1493. The earliest such design actually built was in 1839-40 by Kirkpatrick Macmillan (1810-78) of Dumfries, Scotland. It is now in the Science Museum, London.

### Smallest Bicycle

The world's smallest wheeled *rideable* bicycle is one with 1½-in wheels made of US silver dollars, with a wheelbase of 2¾ in, a seat 7 in from the floor and pedals of ¾ in, built and ridden by Charly Charles in his act at Circus Circus Hotels in Reno and Las Vegas, Nev. Prof Thomas L. Harrington of the Univ of Nevada, Reno, figures that in the 14 years Charly has been riding his miniature bikes on the stage he has traversed 3,343 mi.

With slightly smaller wheels (1.37 in), weighing 24.6 oz, a bicycle with more leg room was built and ridden by Jacques Puyou of Pau, France in 1983. He has also built a tandem bike 14.1 in long to accommodate Mme Puyou.

### Largest Bicycle

A classic Ordinary bicycle with a 65¼-in front wheel and an 18-inch back wheel was constructed by the Coventry Machinists Co in 1881. It is now owned by Paul Foulkes-Halbard of Crowborough, Sussex, Eng.

A bicycle with an 8-ft-2½-in front wheel with pedal extenders was built in 1878 for circus demonstrations.

### Longest Bicycle

The longest true tandem bicycle ever built (*i.e.* without a third stabilizing wheel) is one of 66 ft 11 in for 35 riders built by the Pedaalstompers Westmalle of Belgium. They rode c. 195 ft in practice on Apr 20, 1979. The machine weighs 2,425 lb.

### Fastest Cycle Riding

The speed records for human-powered vehicles are 61.94 mph (single rider) by John Seibert at La Garita, Colo, Oct 27, 1980, and 62.92 mph (multiple riders) by Dave Grylls and Leigh Barczewski at the Ontario Speedway, Calif, May 4, 1980. (Also see Chapter 12—Cycling.)

### Unicycles

The tallest unicycle ever mastered is one 101 ft 9 in tall ridden by Steve McPeak (with a safety wire or mechanic suspended to an



overhead crane) for a distance of 376 ft in Las Vegas Oct 19, 1980. The free style riding of ever taller unicycles (that is, without any safety harness) must inevitably lead to serious injury or fatality.

Hanspeter Beck of Jindabyne, S Australia unicycled 3,876.08 mi in 51 days, 23 hours, 25 min, June 30–Aug 20, 1985, going from W Australia to Melbourne. Brian Davis of Tillicoultry, Scotland rode 901 mi from Land's End to John O'Groats May 16–June 4, 1980 in 19 days 1¼ hours. Floyd Beattie of Athens, O, set a record for 100 mi in 7 hours 18 min 55 sec on Oct 11, 1986. The sprint record from a standing start over 100 meters is 14.89 sec by Floyd Grandall of Pontiac, Mich, in Tokyo, Japan on Mar 24, 1980. Deepak Lele of Maharashtra, India, unicycled 3,963 mi from NYC to LA, but took 111 days, June 6–Sept 25, 1984.

A unicycle nicknamed "Large Marge" with a 66-in wheel was constructed by Dave Moore, Michael Leebolt, and Steve Gordon, of Moorpark, Calif. Gordon first rode it on Oct 17, 1986.

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### 3. RAILROADS

#### Earliest

Wagons running on wooden rails were used for mining as early as 1550 at Leberthal, Alsace, near the French-German border, and at the Broseley Colliery, Shropshire, England in Oct 1605. Richard Trevithick (1771–1833), built his first steam locomotive for the 3-ft-gauge iron platway at Coalbrookdale, Shropshire, in 1803, but there is no evidence that it ran. The first known to have *run* was his second locomotive, which drew wagons with men riding on them in a demonstration run at Penydarren, Wales, on Feb 22, 1804, but it broke the plate rails.

#### Fastest Rail Speed

The world's fastest rail speed with passengers is 249 mph by the Maglev (magnetic levitation) ML-500 test train over the 4.3 mi JNR experimental track at Miyazaki, Japan in Dec 1979.

The highest speed attained by a railed vehicle is 6,121 mph or Mach 8 by an unmanned rocket sled over the 9½-mile-long rail track at White Sands Missile Range, NM on Oct 5, 1982.

The highest speed recorded on any national rail system is 236 mph by the French SNCF high-speed train TGV-PSE on trial near Tonnerre Feb 26, 1981. The TGV (Train à Grande Vitesse), inaugurated in 1981, two years later reduced its scheduled time for the Paris–Lyon run of 264 miles from 2 hours 14 min to 2 hours exactly, so averaging 132 mph. The peak speed attained was 168 mph.



## Most Powerful Locomotive

The most powerful steam locomotive, measured by tractive effort, was No. 700, a triple-articulated or triplex 2-8-8-8-4-6-cylinder engine which the Baldwin Locomotive Co built in 1916 for the Virginian Railroad. It had a tractive force of 166,300 lb working compound and 199,560 lb working simple.

Probably the heaviest train ever hauled by a single engine was one of 17,100 tons made up of 250 freight cars stretching 1.6 miles by the *Matt H. Shay* (No. 5014), a 2-8-8-8-2 engine which ran on the Erie Railroad from May 1914 until 1929.

## Greatest Load

The heaviest single pieces of freight ever conveyed by rail are limited by the capacity of the rolling stock. The world's strongest and only rail carrier, with a capacity of 889.7 tons, is the 370.4-ton, 36-axle, 301-ft-10-in-long "Schnabel," built for a US railway by Krupp, W Germany in Mar 1981.

The heaviest load ever moved on rails was the Church of the Virgin Mary built in 1548 at Most, Czechoslovakia, weighing nearly 12,000 tons, moved in Oct-Nov 1975 because it was in the way of mining for coal deposits. It was moved 800 yd at 0.0013 mph over a period of 4 weeks at a cost of \$15,300,000.

## Most Traveling

Using Amtrak's "All Aboard America" \$299 ticket, valid for a month, James J. Brady of Wilmington, O, traveled through 442 (out of 450) stations over 21,485 unduplicated mi of track (out of 23,000) [—Mar 11, 1984.

1 E. Ballenger of Dunedin, Fla has logged 76,485 mi of duplicated rail routes in North and South America in his lifetime.

## Pushed Railcars

fastest time set in the now annual races at Port Moody, BC, a, over 300 meters (985 ft) by a 5-man team (1 pusher, 4 rs) is 33.54 sec on June 27, 1982.

## Waiting Rooms

largest waiting rooms are the four in Peking Station, Chang'an ward, Peking, China, opened in Sept 1959, with a total standing ty of 14,000.

## Stations

biggest railroad station is Grand Central Terminal, NYC, built 1888-1913. It covers 48 acres on 2 levels with 41 tracks on the upper and 26 on the lower. On average, more than 550 trains and 100,000 people per day use it, with a peak of 252,288 on July 3, 1947.

highest station is Condor, Bolivia, at 15,705 ft on the gauge Rio Mulato-to-Potosí line.

oldest station in the world is Liverpool Road Station, Manchester, England, first used in 1830. It is now part of a museum.

## Steepest Grade

The steepest standard gauge gradient by adhesion is 1:11 between Chedde and Servoz on the meter gauge electric SNCF Chamonix line, France.

## Widest and Narrowest Gauges

The widest gauge in standard use is 5 ft 6 in. This width is used in Spain, Portugal, India, Pakistan, Bangladesh, Sri Lanka, Argentina and Chile. In 1885, there was a lumber railway in Oregon with a gauge of 8 ft.

The narrowest gauge on which public services are operated is 10¼ in on the Wells Harbour (0.7 mi) and the Wells-Walsingham Railways (4 mi) in Eng.

## Longest Line

The longest run is one of 5,864¼ miles on the Trans-Siberian Line between Moscow and Nakhodka in the Soviet Far East. There are 97 stops on the journey, which takes 8 days 4 hours 25 min. The 1,927.5-mi Baykal-Amur Magistral (BAM) northern line, begun with forced labor in 1938, was restarted in 1974 and put into service on Oct 27, 1984. It will cut 310 miles off the route around the southern end of Lake Baykal. A total of 10,000 million cu ft of earth was removed and 1,987 bridges built in this \$10 billion project.

## Longest Straight Length

The longest straight is on the Commonwealth Railways Trans-Australian line over the Nullarbor Plain from Mile 496 between Nurina and Loongana, Western Australia, to Mile 793 between Ooldea and Watson, South Australia, 297 miles dead straight although not level.

## Platforms

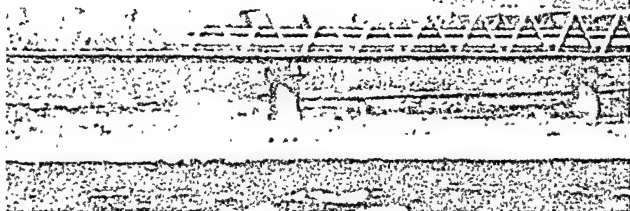
The longest railroad platform is the Khargpur platform in West Bengal, India, which measures 2,733 ft in length. The State Street Center subway platform in "The Loop" in Chicago measures 3,500 ft in length.

The two platforms comprising the New Nisato railway station on the Musashino line, Saitama, Japan, are 984 ft 3 in apart and are connected by a bridge.

## Subways

The earliest (first section opened Jan 10, 1863) and one of the most extensive underground railway or rapid transit systems of the 67 in the world is that of the London Underground, with 251 miles of route, of which 85 miles is bored tunnel and 20 miles is "cut and cover." This whole system is operated by a staff of 22,000 serving 273 stations. The 457 trains comprising 3,875 cars carried 750 million passengers in 1985-86.

The subway with most stations is operated by the NYC Transit Authority (first section opened on Oct 27, 1904) with a total of 231.73 route miles of track and a record 1,096,006,529 passengers in 1979. The stations are close set and total 458. The record for traveling the



pulling and three more in the middle, on the Jaeger, West Virginia, to Portsmouth, Ohio stretch of 157 miles on the Norfolk and Western Railway on Nov 15, 1967. The total weight was nearly 47,250 tons.

## Model Railways

The non-stop duration record for a model train (locomotive plus 6 coaches) is 864 hours 30 min from June 1 to July 7, 1978, covering 678 miles, organized by Roy Catton at "Pastimes" Toy Store, Mexborough, S. Yorkshire, England.

The longest recorded run by a model *steam* locomotive is 144 miles in 27 hours 18 min by the 7¼-in gauge "Winifred" built in 1974 by Wilf Grove at Thames Ditton, Surrey, England on Sept 8-9, 1979. "Winifred" works on 80 lb/sq-in pressure and is coal-fired with a 2¼-in bore cylinder and a 3¼-in stroke.

The most miniature model railway ever built is one of 1:1000 scale by Jean Damery (b 1923) of Paris. The engine ran on a 4½-volt battery and measures 516 in overall.

## 4. AIRCRAFT

*Note:* The use of the Mach scale for aircraft speeds was introduced by Prof Ackeret of Zurich, Switzerland. The Mach number is the ratio of the velocity of a moving body to the local velocity of sound. This was first employed by Dr Ernst Mach (1838-1916) of Austria in 1887. Thus Mach 1.0 equals 760.98 mph at sea level at 15° C (59°F) and is assumed, for convenience, to fall to a constant 659.78 mph in the stratosphere, i.e. above 11,000 m (36,089 ft).

### Earliest Flights

The first controlled and sustained power-driven flight occurred near Kill Devil Hill, Kitty Hawk, NC at 10:35 a.m. on Dec 17, 1903, when Orville Wright (1871-1948) flew the 12-hp chain-driven *Flyer I* for a distance of 120 ft, at an airspeed of 30 mph, a ground speed of 6.8 mph and an altitude of 8-12 ft for about 12 sec, watched by his brother Wilbur (1867-1912), 4 men and a boy. Both brothers, from Dayton, Ohio, were bachelors because, as Orville put it, they had not the means to "support a wife as well as an airplane." The *Flyer* is now in the National Air and Space Museum of the Smithsonian Institution, Washington, DC.

The first hop by a man-carrying airplane entirely under its own power was made when Clément Ader (1841-1925) of France flew in his *Eole* for about 164 ft at Armainvilliers, France, on Oct 9, 1890. It was powered by a lightweight steam engine of his own design which developed about 20 hp (15 kw).

The earliest "rational design" for a flying machine (according to the British Royal Aeronautical Society) was published by Emanuel Swedenborg (1688-1772) in Sweden in 1717.

### Transatlantic Flights

The first crossing of the North Atlantic by air was made by Lt-Cdr

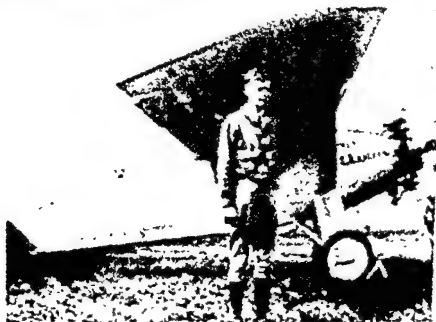
(later Rear Admiral) Albert C. Read (1887-1967) and his crew (Stone, Hinton, Rodd, Rhoads and Breese) in an 84-knot Curtiss flying boat NC-4 of the US Navy from Trepassy Harbour, Newfoundland, Canada via the Azores, to Lisbon, Portugal, May 16 to 27, 1919. The whole flight of 4,717 miles originating from Rockaway Air Station, Long Island, NY, on May 8, required 53 hours 58 min terminating at Plymouth, England on May 31. The Newfoundland-Azores leg (1,200 miles) took 15 hours 18 min at 81.7 knots.

The first non-stop transatlantic flight was achieved 18 days later, from 4:13 p.m. GMT on June 14, 1919 from Lester's Field, St John's, Newfoundland, 1,960 miles to Derrygimla bog near Clifden, Co Galway, Ireland, at 8:40 a.m. GMT June 15, when the pilot Capt John William Alcock (1892-1919), and Lt Arthur Whitten Brown (1886-1948) flew across in a Vickers Vimy, powered by two 360-hp Rolls-Royce *Eagle VIII* engines.



**FIRST TO FLY:** Were it not for these men, the Wright brothers, Wilbur and Orville, air flight might not have been possible. Here they are on the way to making their historic flight dressed in stiff collars and ties. The takeoff in 1903 came after a ground speed of 6.8 mph was reached. The plane flew for 12 sec at a height of 8-12 ft. (*Air & Space Museum, Washington*)

**AMERICAN PACESETTER:** The first person to fly solo across the Atlantic, Charles A. Lindbergh became an instant hero. He did it in a tiny plane "The Spirit of St. Louis" in 1927 in a 33½-hour ordeal and won \$25,000.



**SUPERSONIC  
SPEEDSTERS: 4**  
Concordes flying in  
formation. These planes,  
with as many as 128  
passengers, cruise at up  
to 2.2 Mach (1,450 mph)  
(British Airways)

The 79th man to complete a transatlantic trip but the first to fly alone was Capt (later Col and Brig Gen) Charles A. Lindbergh (1902-74), who took off in his 220-hp Ryan monoplane *Spirit of St Louis* at 12:52 p.m. GMT on May 20, 1927 from Roosevelt Field, Long Island, NY. He landed at 10:21 p.m. GMT on May 21, 1927 at Le Bourget airfield, Paris, France. His flight of 3,610 miles lasted 33 hours 29½ min and he won a prize of \$25,000.

The record for the most transatlantic flights is held by TWA Capt Charles M. Schimpf who logged a total of 2,880 Atlantic crossings, at the rate of 6.4 per month, between Mar 1948 and his retirement in Sept 1984.

The transatlantic flight speed record is 1 hour 54 min 56.4 sec by Maj James V. Sullivan, 37, and Maj Noel F. Widdisfield, 33, flying a Lockheed SR-71A eastwards on Sept 1, 1974. The average speed, slowed by refueling by a KC-135 tanker aircraft, for the NY-London stage of 3,461.53 miles was 1,806.963 mph. The solo record (Gander to Gatwick) is 8 hours 47 min 32 sec by Capt John J. A. Smith in a Rockwell 685 on March 12, 1978.

## Transpacific Flight

The first non-stop Pacific flight was by Maj Clyde Pangborn and Hugh Herndon in the Bellanca cabin plane *Miss Veedol* from Sabishiro Beach, Japan, 4,558 miles to Wenatchee, Wash in 41 hours 13 min on Oct 3-5, 1931. (For earliest crossing see 1924 flight below.)

## Circumnavigational Flights

A strict circumnavigation of the earth requires passing through two antipodal points and is thus a minimum distance of 24,859.75 miles. (The FAI permits flights which exceed the length of the Tropic of Cancer or Capricorn, namely 22,858.754 miles, to be called round-the-world.)

The earliest such flight (26,345 miles) was made by two US Army Douglas DWC amphibians in 57 "hops." The *Chicago* was piloted by Lt Lowell H. Smith and Lt Leslie P. Arnold and the *New Orleans* was



piloted by Lt Erik H. Nelson and Lt John Harding. The planes took off from Seattle, Wash on Apr 6, 1924 and landed back there on Sept 28, 1924.

The earliest solo claim was by Wiley Hardemann Post (1898–1935) (US) in the Lockheed Vega *Winnie Mae*, starting and finishing at Floyd Bennett Field, NYC July 15–22, 1933, in 10 "hops." His distance of 15,596 miles with a flying time of 115 hours 36 min was, however, at too high a latitude to qualify.

The first non-stop round-the-world flight was completed on Mar 2, 1949, by the USAF's Boeing B-50 Superfortress *Lucky Lady II*, piloted by Capt James Gallagher from Carswell AFB, Tex in 94 hours 1 min. The aircraft was refueled 4 times on its 23,452-mile flight.

The fastest flight has been a non-stop easterly flight of 45 hours 19 min by 3 USAF B-52's led by Maj-Gen Archie J. Old, Jr. They covered 24,325 miles on Jan 16–18, 1957, finishing at March AFB, Riverside, Calif having averaged 525 mph with 4 in-flight refuelings by KC-97 aerial tankers.

The smallest aircraft to complete a circumnavigation is a 20-ft-11-in single-engined 180-hp Thorp T-18, built in his garage by its pilot Donald P. Taylor of Sage, Calif. His 26,190-mile flight in 37 stages took 176 flying hours, ending in Oshkosh, Wis on Sept 30, 1976.

## Jet-Engine Flight

Proposals for jet propulsion date back to 1909, by Capt Marconnet of France and Henri Coanda (1886–1972) of Rumania, and to the turbojet proposals of Maxime Guillaume in 1921. The earliest tested run was that of the British Power Jets Ltd's experimental WU (Whittle Unit) on Apr 12, 1937, invented by Flying Officer Frank Whittle who had applied for a patent on jet propulsion in 1930.

The first flight by an airplane powered by a turbojet engine was made by the Heinkel He 178, piloted by Flugkapitän Erich Warsitz, at Marienehe, Germany Aug 27, 1939. It was powered by a Heinkel He S3b engine (834-lb as installed with long tailpipe) designed by Dr Hans "Pabst" von Ohain and first tested in Aug 1937.

## Circum-Polar Flight

The first circum-polar flight was flown solo by Capt Elgen M. Long, 44, in a Piper Navajo, Nov 5 to Dec 3, 1971. He covered 38,896 miles in 215 flying hours. The cabin temperature sank to  $-40^{\circ}\text{F}$  over Antarctica.

## Supersonic Flight

The first supersonic flight was achieved Oct 14, 1947 by Capt (later Brig-Gen) Charles ("Chuck") Elwood Yeager, USAF retired (b Feb 13, 1923), over Edwards Air Force Base, Muroc, Calif in a US Bell XS-1 rocket plane (*Glamorous Glennis*), with Mach 1.015 (670 mph) at an altitude of 42,000 ft. In Feb 1986, Yeager was still breaking records. He flew from Burbank, Calif to LaGuardia Airport, NYC, in 5 hours, 23 min in a Piper-Cheyenne 400-LS, a record for a business turboprop plane of less than 13,000 lb.

The first woman to fly faster than the speed of sound was Jacqueline Cochran (US), who on May 18, 1953, flew a North American F-86 Sabre at 652 mph.



## Heaviest and Smallest Planes

The highest recorded gross takeoff weight of an aircraft has been 425 tons in the case of a Boeing 747-200B jumbo jet during certification tests of its Pratt & Whitney JT9D-7Q engines on May 23, 1979.

A Boeing 747 (Capt Eric Moody) became the "world's heaviest glider" when all 4 engines stopped at 37,000 ft up, due to volcanic ash from Mt Galunggung, Indonesia on June 24, 1982 on Flight BA 009 with 263 aboard. The crew got the engines restarted after 13 min and landed the plane at Jakarta.

The \$34 million Piasecki Helistat, comprising a framework of light-alloy and composite materials to mount 4 Sikorsky SH-34J helicopters and the envelope of a Goodyear ZPG-2 patrol airship, was exhibited on Jan 26, 1984 at Lakehurst, NJ. Designed for use by the US Forest Service and designated Model 94-37J Logger, it has an overall length of 343 ft and is intended to carry a payload of 24 tons.

Three planes vie for the record as the world's smallest. The "Sky Baby" designed by Ray Stits of Riverside, Calif and first flown by the cobuilder Robert H. Starr of Tempe, Ariz, May 26, 1952, weighs 452 lb empty, is 9 ft 10 in long, with wing span of 7 ft 2 in, and has top air speed of 185 mph. Another record smallest plane was designed and built by Starr and first flown by him in Ariz on Jan 28, 1984. Called the "Bumble Bee," it weighs more (756 lb) but is shorter, 9 ft 4 in long, with a wing span of 6 ft 6 in, and a top air speed of 180 mph. Both planes use Continental C-85 engines. A third plane with the smallest wing span (6 ft 3 in) and lightest in weight (252 lb empty) is the "Baby Bird" built by Donald R. Stits. It is longer (11 ft), is powered by a 55-hp 2-cylinder Hirth engine, and was first flown by Harold Nemer on Aug 4, 1984 at a top speed of 110 mph at Camarillo, Calif.

The smallest jet is the 280-mph *Silver Bullet* built by Bob Bishop (with Corky Fornof, partner) with a 17-ft wing span and weighing 432 lb.

## Ultralight Plane

On Aug 3, 1985, Anthony A. Cafaro (b Nov 30, 1951) flew a ULA single-seater *Gypsy Skycycle*, having a maximum weight of 245 lb, a maximum speed of 65 mph, and a capacity of 5 gal for 7 hours 31 min at Dart Field, Detroit, Mich. Nine fuel pickups were completed during the flight.

## Solar-Powered Flight

The solar-powered *Solar Challenger*, designed by a team led by Dr Paul MacCready, was flown for the first time entirely under solar power on Nov 20, 1980. On July 7, 1981, piloted by Steve Patek (US), the *Solar Challenger* became the first aircraft of this category to achieve a crossing of the English Channel. Taking off from Pontois-Cormeilles, Paris, the 163-mi journey to Manston, Kent, Eng, was completed in 5 hr 23 min at a maximum altitude of 11,000 ft. The aircraft has a wing span of 47 ft.

## Largest and Fastest Airliners

The highest capacity jet airliner is the Boeing 747 jumbo jet, first flown on Feb 9, 1969. It has a capacity of from 385 to more than 500 passengers with a maximum speed of 602 mph. Its wing span is 195.7 ft and its length, 231.8 ft. It entered service on Jan 22, 1970. The Boeing 747-300 with a lengthened upper deck, which allows an extra 37 passengers, entered service in Mar 1983.

The greatest passenger load on a commercial airliner was 674 people—306 adults, 328 children and 40 babies—from the cyclone-devastated Darwin to Sydney, Australia on Dec 29, 1974.

The supersonic BAC/Aérospatiale *Concorde*, first flown on March 2, 1969, with a capacity of 128 passengers, cruises at up to Mach 2.2 (1,450 mph). It flew at Mach 1.05 on Oct 10, 1969, exceeded Mach 2 for the first time on Nov 4, 1970, and became the first supersonic airliner used for passenger service on Jan 21, 1976, when Air France and British Airways opened service simultaneously between, respectively, Paris-Rio de Janeiro and London-Bahrain. Services between London-NY and Paris-NY began Nov 22, 1977. The NY-London record time is 2 hours 56 min 35 sec set Jan 1, 1983.

## Heaviest and Fastest Bombers

The heaviest bomber is the 8-jet swept-wing Boeing B-52H *Stratofortress*, which has a maximum takeoff weight of 488,000 lb. It has a wing span of 185 ft and is 157 ft 6¾ in in length, with a speed of over 650 mph. The B-52 can carry 12 SRAM thermonuclear short-range attack missiles or 24 750-lb bombs under its wings and 8 more SRAMs or 84 500-lb bombs in the fuselage.

The fastest operational bombers are the French Dassault Mirage IV, which can fly at Mach 2.2 (1,450 mph) at 36,000 ft; the General Dynamics FB-111A, with a maximum speed of Mach 2.5; and the Soviet swing-wing Tupolev Tu-26 known as "Backfire," which has an estimated over-target speed of Mach 2.0 to 2.5 and a combat radius of 3,570 miles.

## Highest Air Speed

The official air speed record is 2,193.167 mph by Capt Eldon W. Joersz and Maj George T. Morgan, Jr, in a Lockheed SR-71A near Beale Air Force Base, Calif on July 28, 1976 over a 9.3-15.5-mi course.

The fastest fixed-wing craft was a North American Aviation X-15A-2, which flew for the first time (after modification from X-15A) on June 25, 1964, powered by a liquid oxygen and ammonia rocket propulsion system. Ablative materials on the airframe enabled a temperature of 3,000°F to be withstood. The landing speed was 216 knots (242 mph) momentarily. The highest speed attained was 4,520 mph (Mach 6.72) when piloted by Maj William J. Knight, USAF (1930) on Oct 3, 1967. An earlier version piloted by Joseph A. Walker (1920-66) reached 354,200 ft (67.08 miles) over Edwards Air Force Base, Calif on Aug 22, 1963. The program was suspended after the final flight of Oct 24, 1968.

The US NASA Rockwell International Space Shuttle *Columbia* was launched from the Kennedy Space Center, Canaveral, Fla, commanded by Commander John W. Young on Jan 28, 1984.



## Fastest Jet

The fastest jet aircraft is the USAF Lockheed SR-71 reconnaissance aircraft which first flew on Dec 22, 1964 and attained a speed of 2,193.167 mph July 28, 1976 (official record). It is reportedly capable of attaining an altitude ceiling of close to 100,000 ft. The SR-71 has a wing span of 55.6 ft, a length of 107.4 ft and weighs 170,000 lb at takeoff. Its reported range is 2,982 miles at Mach 3 at 78,750 ft. At least 30 are believed to have been built.

The fastest combat aircraft in service is the USSR Mikoyan MIG-25 fighter (code name "Foxbat"). The reconnaissance "Foxbat-B" has been tracked by radar at about Mach 3.2 (2,110 mph). When armed with 4 large underwing air-to-air missiles known to NATO as "Acrid," the fighter "Foxbat-A" is limited to Mach 2.8 (1,845 mph). The single-seat "Foxbat-A" spans 45 ft 9 in, is 78 ft 2 in long, and has a maximum takeoff weight of 82,500 lb.

## Fastest Piston-Engined Aircraft

The fastest speed at which a piston-engined plane has ever been measured was for a cut-down privately owned Hawker *Sea Fury* which attained 520 mph in level flight over Texas in Aug 1966, piloted by Mike Carroll (k 1969) of Los Angeles.

The FAI accredited record for a piston-engined aircraft is 517.055 mph over Mojave, Calif by Frank Taylor (US) in a modified North American P-51D *Mustang* powered by a 3,000-hp Packard Merlin, over a 15-25 km course, on July 30, 1983.

## Fastest Biplane

The fastest recorded biplane was the Italian Fiat C. R. 42B, with a 1,010-hp Daimler-Benz DB601 A engine, which attained 323 mph in 1941. Only one was built.

## Most Capacious Aircraft

The Aero Spacelines Super Guppy has a cargo hold with a usable volume of 49,790 cu ft and a maximum takeoff weight of 87.5 tons. Wing span is 156.2 ft, length 141 ft 3 in. Its cargo compartment measures 108 ft 10 in in length with a cylindrical section of 25 ft in diameter.

The Soviet Antonov AN-124 *Ruslan* has a cargo hold with a usable volume of 35,800 cu ft and a maximum takeoff weight of 446.4 tons. It is powered by 4 Lotarev D-18T turbofans, giving a cruising speed of up to 528 mph at 39,370 ft and a range of 2,796 mi.

## Largest Wing Span

The "Spruce Goose," the wooden flying boat with the world's largest wing span—319 ft 11 in—but which could not fly for more than a thousand yards, was moved by giant cranes in 1982 6 mi across the harbor in Long Beach (Calif) to rest in a 700-ft-diameter dome to become a walk-through museum. Alongside is the *Queen Mary* which from 1936 to 1940 was the world's largest ocean liner. Now at Pier J in Long Beach, one can within a few hours and a few yards examine both record holders.

The transferral of the "Spruce Goose" (nickname of the Hercules)



## Fastest Propeller-Driven Aircraft

The Soviet Tu-114 turboprop transport recorded a speed of 545.076 mph carrying heavy payloads over measured circuits. It is developed from the Tupolev Tu-95 bomber, known in the West as the "Bear," and has four 14,795-hp engines. The turboprop-powered Republic XF-84H prototype US Navy fighter which flew on July 22, 1955 had a top design speed of 670 mph, but was abandoned.

## Largest Aircraft Propeller

The largest aircraft propeller ever used was the 22-ft-7½-in diameter Garuda propeller, fitted to the Linke-Hofmann R II built in Wroclaw, Poland, which flew in 1919. It was driven by four 260-hp Mercedes engines and turned at only 545 rpm.

## Flight Duration

The flight duration record is 64 days, 22 hours, 19 min and 5 sec, set by Robert Timm and John Cook in a Cessna 172 "Hacienda." They took off from McCarran Airfield, Las Vegas, Nev just before 3:53 a.m. local time on Dec 4, 1958 and landed at the same airfield just before 2:12 p.m. on Feb 7, 1959. They covered a distance equivalent to 6 times around the world with continued refueling without landing.

## Youngest and Oldest Pilots

The youngest age at which anyone has ever qualified as a military pilot is 15 years 5 months in the case of Sgt Thomas Dobney (b May 6, 1926) of the British Royal Air Force. He had lied about his age (14 years) on induction.

The youngest solo pilot has been Cody A. Locke in a Cessna 150 aircraft near Mexicali, Mexico on Feb 24, 1983, when aged 9 years 316 days.

Flying with his instructor and others, 11-year-old John Kevin Hill, flew across the US with 4 stops, June 22-July 1, 1987. He started in Arlington, Tex and went to LA non-stop on the first leg of the flight. He was alone at the controls on the whole flight for the longest distance flown by the youngest pilot.

The oldest pilot is Ed McCarty (b Sept 18, 1885) of Kimberly, Idaho who in 1979 was flying his rebuilt 30-year-old Ercoupe at the age of 94. Glenn E. Messer of Birmingham, Ala has been flying "steady" since May 13, 1911.

## Oldest and Youngest Passenger

Airborne births are reported every year. The oldest person to fly has been Mrs. Jessica S. Swift (b Anna Stewart Sept 17, 1871) aged 110 years 3 months, from Vermont to Florida in Dec 1981.

## Greatest Altitude

The official altitude record by an aircraft taking off from the ground under its own power is 123,524 ft (23.39 miles) by Aleksandr Fedotov (USSR) in a Mikoyan E-266M (MIG-25) aircraft, powered by two 30,865-lb thrust turbojet engines on Aug 31, 1977.

In the same aircraft he established the fastest climb record on May 17, 1975 reaching 30,000 m 98,425 ft in 4 min 11.7 sec after take off.

## Most Flying Hours

Max Conrad (1903-79) (US) logged 52,929 hours 40 min of flight time, a total of more than 6 years airborne, between 1928 and mid-1974. He completed 150 transatlantic crossings in light aircraft.

The record supersonic passenger is Fred Finn who made 604 Concorde crossings by June 1986.

## Most Takeoffs and Landings from Airports

Al Yates and Bob Phoenix of Texas made 193 takeoffs and daylight landings at unduplicated airfields in 14 hours 57 min in a Piper Seminole on June 15, 1979.

## Longest and Shortest Scheduled Flights

The longest scheduled non-stop flight is the weekly Pan Am Sydney-San Francisco non-stop Flight 816 (13 hours 25 min) in a Boeing 747 SP (Special Performance) opened in Dec 1976 over 7,475 statute miles.

The longest non-stop flight was one of 7,950 statute mi from Melbourne, Aust to LA by Pan Am Clipper Flight 816 on July 2, 1984 when the scheduled stop in Sydney was cancelled because of a strike. The pilot was Capt David Riggs and the flight took 13 hours 59 min.

The longest delivery flight by a commercial jet is 8,936 nautical miles or 10,290 statute miles from Seattle, Wash to Cape Town, South Africa by South African Airway's Boeing 747 SP *Matroosberg*. She made the 17-hour-22½-min flight loaded with 196.5 tons of pre-cooled fuel March 23-29, 1976.

The shortest scheduled flight is made by Loganair between the Orkney Islands (Scotland) of Westray and Papa Westray, which has been flown with twin-engined 10-seat Britten-Norman Islander transports since Sept 1967. Though scheduled for 2 minutes, in favorable wind conditions it has been accomplished in 58 sec by Capt Andrew D. Alsop.

United Airlines provides the shortest scheduled flight by Boeing 727 jet between San Francisco and Oakland, Calif. There are three flights daily and return, the flight time averaging 5 minutes for the 12 mi journey.

Gary W. Rovetto of Island Air on Mar 21, 1980 flew on the scheduled flight from Center Island to Decatur Island, Wash in 41 sec.

## Air Safety

Experiments at Langley Air Force Base in Virginia include hurling dead chickens at airplanes traveling 700 mph to see how jets can avoid hitting birds that cause accidents. The "chicken gun" is a converted 20-ft cannon that shoots 4-lb chickens at engines, windshields and landing gear.

## Largest Airports

The largest airport is the \$2.625 million King Khalid International Airport outside Riyadh, Saudi Arabia, covering an area of 86 sq mi.

opened on Nov 14, 1983. It has the world's largest control tower 215 ft in height.

The Hajj Terminal at the \$2,940 million King Abdul-Aziz airport near Jeddah is the world's largest roofed structure covering 370 acres.

The present 6 runways and 5 terminal buildings of the Dallas/Fort Worth Airport, Tex are planned to be extended to 9 runways and 13 terminals with 260 gates with an ultimate capacity for 150 million passengers annually.

The largest airport terminal is Hartsfield Atlanta International Airport opened Sept 21, 1980, with floor space covering 50.5 acres. It has 138 gates handling nearly 50 million passengers annually but has a capacity for 75 million.

## Highest and Lowest Airports

The highest airport in the world is La Sa (Lhasa) Airport in Tibet at 14,315 ft. The highest landing ever made by a fixed-wing plane was at 19,947 ft on Dhaulagiri, Himalaya, by a Pilatus Porter, named *Yeli*, supplying the 1960 Swiss Expedition. The lowest landing field is El Lisan on the east shore of the Dead Sea, 1,180 ft below sea level, but during World War II BOAC short C-class flying boats operated from the surface of the Dead Sea 1,292 ft below sea level. The lowest international airport is Schiphol, at Amsterdam, Holland at 13 ft below sea level. Although not an international airport, the one nearby at Rotterdam at 15 ft below sea level is lower.

## Busiest Airport

The busiest airport is the Chicago O'Hare International Airport, with a total of 795,026 movements and 54,770,673 passengers in 1986. This represents a takeoff or landing every 39.66 sec around the clock. Heathrow Airport outside London handles more international traffic than any other.

The busiest landing area ever has been Bien Hoa Air Base, South Vietnam, which handled more than one million takeoffs and landings in 1970. The largest "helipad" was An Khe, South Vietnam.

The heliport at Morgan City, La., one of a string used by helicopters flying energy-related offshore operations into the Gulf of Mexico, has pads for 46 helicopters.

## Airport Distance to City Centers

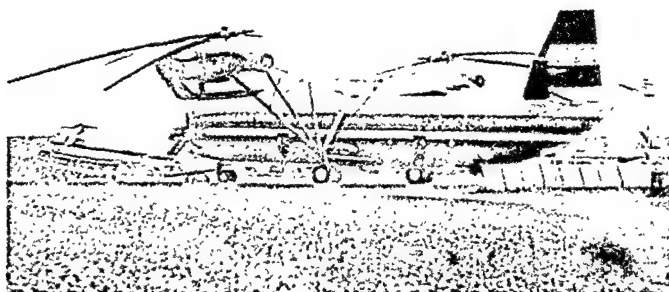
The airport farthest from the city center it allegedly serves is Viracopos, Brazil, which is 60 miles from São Paulo. The Gibraltar airport is 880 yd from the city center.



A paved runway 20,500 ft long (3.88 mi) appears on maps of Jordan at Abu Husayn.

## Round-the-World by Helicopter

H. Ross Perot and Jay Coburn, both of Dallas, Tex., made the first helicopter circumnavigation of the globe in "Spirit of Texas" Sept 1-30, 1982. The first solo round-the-world flight in a helicopter was completed by Dick Smith (Australia) on July 22, 1983. Flown from and to the Bell Helicopter facility at Fort Worth, Tex., in a Bell Model 206L *Long Ranger III*, his unhurried flight began on Aug 5, 1982 and covered a distance of 35,258 miles.



**LARGEST HELICOPTER:** Weighing 115 tons, the Soviet's Mil Mi-12 V-12 helicopter, known as "Homer," has a rotor span of 219 ft 10 in and a length of 121 ft 4½ in. (K J A Brooker)

## Largest and Strongest Helicopters

The largest helicopter is the Soviet Mil Mi-12 ("Homer"), also known as the V-12. It is powered by four 6,500-hp turboshaft engines, and has a span of 219 ft 10 in over its rotor tips with a fuselage length of 121 ft 4½ in and weighs 115.7 tons.

On Feb 3, 1982, at Podmoscovno in the Soviet Union, a Mil Mi-26 heavy-lift helicopter, crewed by G. V. Alleturov and L. A. Indeev (co-pilot), lifted a total mass of 125,153.8 lb to a height of 6,560 ft.

## Highest Helicopters

The altitude record for helicopters is 40,820 ft by an Aerospatiale SA 315 B *Lama* over France on June 21, 1972. The highest recorded landing has been at 23,000 ft, below the southeast face of Everest, in a rescue sortie in May 1971. The World Trade Center Helipad is 1,385 ft above street level in NYC, on the South Tower.

## Fastest Helicopter

Trevor Eggington, 53, averaged 249.10 mph over Somerset Eng, on Aug 11, 1986 in a Westland Lynx Company demonstrator helicopter.

## Autogyros

The autogyro or gyroplane, a rotorcraft with an unpowered rotor turned by the airflow in flight, preceded the practical helicopter with engine-driven rotor. Juan de la Cierva (Spain) made the first successful autogyro flight with his model C.4 (commercially named an *Autogiro*) at Getafe, Spain, on Jan 9, 1923.

Wing Cdr Kenneth H. Wallis (GB) holds the straight-line distance record of 543.27 miles, set in his WA-116F autogyro on Sept 28, 1975 non-stop from Lydd, England to Wick, Scotland. Wallis flew his WA-116, with 72-hp McCulloch engine, to a record speed of 120.5 mph over a 1.86-mi straight course on Sept 18, 1986. On July 20, 1982, he established a new autogyro altitude record of 18,516 ft in his WA-121/Mc.

It was reported that on Apr 8, 1931, Amelia Earhart (US) reached a height in excess of 19,000 ft at Pitcairn Aviation Field, Pa.

## Flying Boats

The fastest flying boat ever built has been the Martin XP6M-1 Seamaster, the US Navy 4-jet-engined minelayer, flown in 1955-59 with a top speed of 646 mph. In Sept 1946, the Martin JRM-2 Mars flying boat set a payload record of 68,327 lb.

The official flying-boat speed record is 566.69 mph, set by Nikolai Andrievsky and a crew of 2 in a Soviet Beriev M-10, powered by 2 AL-7 turbojets, over a 10-15 mile course on Aug 7, 1961. The M-10 holds all 12 records listed for jet-powered flying boats, including an altitude of 49,088 ft set by Georgiy Buryanov and crew over the Sea of Azov Sept 9, 1961.

## Ballooning

I. William Deiches (b 1934) of Brentwood, Essex, Eng, has adduced that the "mace-head" of the Scorpion King c.3100 bc found at Hierakonpolis, Egypt is in reality a depiction of a paneled hot-air balloon of papyrus construction.

The earliest recorded ascent was by a model hot-air balloon invented by Father Bartolomeu de Gusmão (né Lourenço) (b Santos, Brazil, 1685), which was flown indoors at the Casa da India, Terreiro do Paço, Portugal on Aug 8, 1709.

The record distance (great-circle distance between takeoff and first landing point) traveled by a balloon is 5,208.68 miles by the Raven experimental helium-filled balloon *Double Eagle V*, with a capacity 399,053 cu ft, Nov 9-12, 1981, from Nagashima, Japan, to Covello, Calif. The crew for this first manned balloon crossing of the Pacific Ocean was Ben L. Abruzzo, Rocky Aoki, Ron Clark and Larry M. Newman.

The first balloon crossing of the North Atlantic had been made during Aug 12-17, 1978 in the gas balloon *Double Eagle II* crewed by Ben L. Abruzzo, Maxie L. Anderson and Larry M. Newman.

The first hot-air balloon to cross the North Atlantic, Maine to Ireland, was the 21-story-high "Virgin Atlantic Flyer," which flew 2,789.6 mi in late June-early July 1987. The pilots, Richard Bramson, 36, a British millionaire, and Per Lindstrand, 38 (Sweden), touched down only briefly in Ireland, then tried to proceed across the North Channel of the Irish Sea to Scotland, but the balloon could not quite

make it. The men jumped from the gondola into the water offshore and were rescued, and the balloon crashed into the sea an hour later.

The first crossing of the US was by the helium-filled balloon *Sunshine* (pilots Fred Gorell and John Shoecraft) from Costa Mesa, Calif., 2,515 mi to Blackbeard's Island, Ga Oct 9-12, 1981.

The FAI endurance and distance record for a gas and hot-air balloon is 96 hours 24 min and 2074.817 miles by *Zanussi* crewed by Don Allan Cameron (GB) and Major Christopher Davey which failed only 103 miles to achieve the first balloon crossing of the Atlantic July 30, 1978.

## Highest Manned and Unmanned Balloons

The highest altitude attained by an unmanned balloon was 170,000 ft, by a Winzen Research balloon of 47,800,000 cu ft, launched from Chico, Calif, in Oct 1972.

The greatest altitude reached in a manned balloon is an unofficial 123,800 ft (23.45 miles) by Nicholas Piantanida (1933-66) of Briarcliff, NJ, from Sioux Falls, SD on Feb 1, 1966. He landed in a cornfield in Iowa but did not survive.

The official record for a manned balloon is 113,740 ft by Capt Malcolm D. Ross, USNR, and the late Lt-Cdr Victor E. Prothro, USN, in an ascent from the deck of USS *Antietam* on May 4, 1959 over the Gulf of Mexico.

The altitude record for a hot-air balloon was set by Julian Nott (GB) who, on Oct 31, 1980, attained an altitude, which has been ratified by the FAI, of 55,137 ft, taking off from Longmont, near Denver, CO in the Cameron-built ICI balloon *Innovation*.

The record altitude in an open basket is 53,000 ft by Chauncey Dunn (US) on Aug 1, 1979. He wore a pressure suit.

## Largest Balloon

The largest balloon built is one with an inflatable volume of 100 million cu ft, by Winzen Research Inc, Minnesota.

## Airships

The earliest flight of an airship was by Henri Giffard from Paris in his steam-powered coal-gas 88,300-cu ft 144-ft-long rigid airship *SF-2* on Oct 24, 1852.

The largest non-rigid airships ever constructed were the US Navy ZPG 3-Ws. Four were built with a capacity of 1,516,300 cu ft, with a length of 403.4 ft long and 85.1 ft in diameter, with a crew of 21. The first one flew on July 21, 1958, but crashed into the sea in June 1960.

The largest rigid airship (except for her sister ship, the *Hindenburg*, which was 5.6 ft longer) was the 236-ton German *Graf Zeppelin* (LZ130), with a length of 803.8 ft and a capacity of 7,062,100 cu ft. She made her maiden flight on Sept 14, 1938 and in May and August 1939 made radar spying missions in British air space. She was dismantled in April 1940.

The most people ever carried in an airship were 207 in the US Navy *Akron* in 1931. The transatlantic record is 117 by the German *Hindenburg* in 1937.

The FAI accredited distance record for airships is 3,967.1 miles, set by the German *Graf Zeppelin*, captained by Dr Hugo Eckener between

Oct 29 and Nov 1, 1928. The German Zeppelin L59 flew from Yambol, Bulgaria to south of Khartoum, Sudan and returned Nov 21-25, 1917 to cover a minimum of 4,500 mi.

The longest recorded flight by a non-rigid airship (without refueling) is 264 hours 12 min by a US Navy Goodyear-built ZPG-2 class ship (Cdr J. R. Hunt, USN) from the S Weymouth, Mass Naval Air Station March 4, 1957 and landing back at Key West, Fla March 15 after having flown 9,448 miles.

The world altitude, duration and distance records, of 10,365 ft, 1 hr 26 min 52 sec, and 23.03 miles, respectively, are held by the Cameron D-38 *hot-air* airship flown at Cunderdin, W. Australia on Aug 27, 1982 by R. W. Taaffe (Australia).

## Model Aircraft

The record for altitude is 26,929 ft by Maynard L. Hill (US) on Sept 6, 1970, using a radio-controlled model and on July 4, 1983 set a closed-circuit distance record of 1,231 mi. The free-flight speed record is 213.70 mph by V. Goukouné and V. Myakinin (both USSR) with a radio-controlled model at Klementyeva, USSR, on Sept 21, 1971. The record duration flight is one of 32 hours 7 min 40 sec by Eduard Svoboda (Czechoslovakia) flying a radio-controlled glider Aug 23-24, 1980. An indoor model with a rubber motor, designed by J. Richmond (US), set a duration record, 52 min 14 sec, Aug 31, 1979.

The smallest model aircraft to fly is one weighing 0.004 oz powered by attaching a horsefly and designed by the insectonaut Don Emmick of Seattle, Wash on July 24, 1979. One flew for 5 min at Kirkland, Wash.

## Paper Airplane

The flight duration record for a paper aircraft over level ground is 16.89 sec by Ken Blackburn in the Reynolds Coliseum at NC State Univ, Raleigh, on Nov 29, 1983. A paper plane was witnessed in Aug 1933 to have flown 1 1/4 miles after a throw by "Chick" C. O. Reinhart from a 10th-story office window at 60 Beaver Street, NYC across the East River. It was helped by a hot updraft from a coffee-roasting plant.

The indoor record with a 12 ft ceiling is 1 min 33 sec set in the Fuji TV studios, Tokyo, Japan on Sept 21, 1980. An indoor distance record of 193 ft was set by Tony Felch of La Crosse, Wis at the La Crosse Center on May 21, 1985.

The largest flying paper airplane was constructed on Apr 26, 1986 by Grahame Foster, David Broom and Andrew Barnes at the Old Warden Aerodrome, Bedfordshire, Eng. It was launched from a platform at a height of 10 ft and flew for 54 ft.

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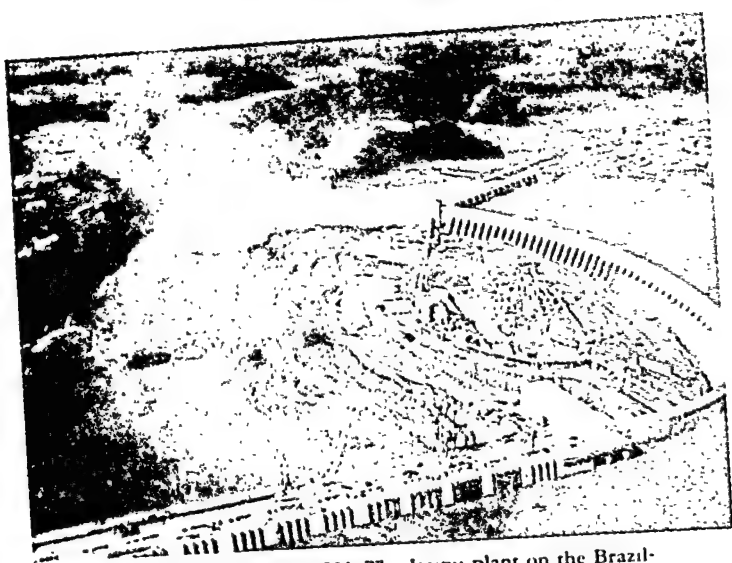
## 5. POWER PRODUCERS

### Earliest and Largest Windmills

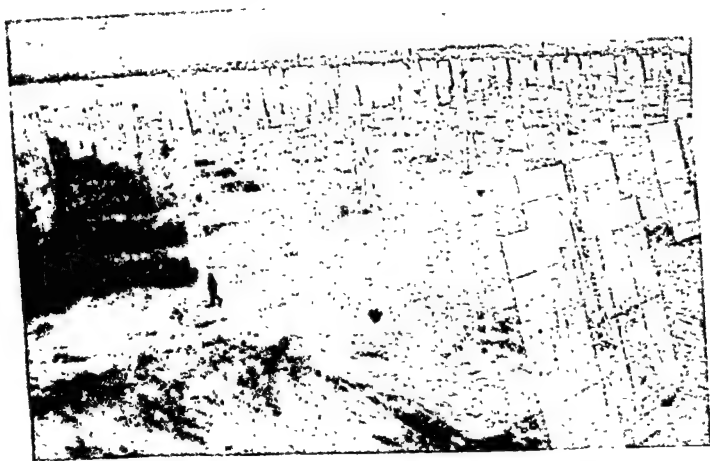
The earliest recorded windmills are those used for grinding corn in Iran (Persia) in the 7th century AD.

The largest Dutch windmill is the Dijkpolder, in Maasland, built in





**NEW GIANT POWER STATION:** The Itaipu plant on the Brazil-Paraguay border will begin generating a record 12,600,000 kW from 18 turbines in 1988-89.



**SOLAR ONE:** What looks like a field of mirrors is actually a field of mirrors. To create a solar power plant that yields 10 million watts, 1,818 mirrors had to be strategically placed to reflect the Calif sun. Total cost: \$141 million. (*Franklin Berger*)

## Largest Generator

Generators in the 2,000,000 kW (or 2,000 MW) range are now in the planning stages both in the UK and the US. The largest operational turbo-generator is 1,450 MW being installed at the Ignalina Atomic Power Station in Lithuania and is now in operation.

## Biggest Blackout

The greatest power failure in history struck 7 northeastern US states and Ontario, Canada, Nov 9-10, 1965. About 30 million people in 80,000 sq mi were plunged into darkness. Two people were killed. In NYC the power failed at 5:27 PM on Nov 9, and was not fully restored for 13½ hours. The total losses resulting from another NYC power failure, on July 13, 1977, which lasted for 52 min, but as long as 25 hours in some areas, have been estimated at \$1 billion, including losses due to looting.

## Tidal Power Station

The first major tidal power station is the *Usine marémotrice de la Rance*, officially opened on Nov 26, 1966 at the Rance estuary in the Golfe de St Malo, Brittany, France. Built in 5 years, at a cost of \$75,600,000, it has a net annual output of 544 million kW/h. The 880-yd barrage contains 24 turbo-alternators.

A \$46 million pilot Annapolis River project for the Bay of Fundy, Nova Scotia, Canada, was begun in 1981.

The \$1,000 million Passamaquoddy project for the Bay of Fundy, Maine and New Brunswick remains a project.

## Biggest Boiler

The largest boilers ever designed are those ordered in the US from the Babcock & Wilcox Co with a capacity of 1,330 MW, so involving the evaporation of 9,330,000 lb of steam per hour.

## Longest-Lasting Battery

The zinc foil and sulfur dry pile batteries made by Watlin and Hill of London in 1840 have powered ceaseless tintinnabulation inside a bell jar at the Clarendon Laboratory, Oxford since that year.

## Largest Turbines

The largest hydraulic turbines are those rated at 815,000 kW (equivalent to 1.1 million hp), 32 ft in diameter, with a 449-ton runner and a 350-ton shaft, installed by Allis-Chalmers at the Grand Coulee "Third Powerplant" in Wash.

The largest reversible pump-turbine is that made by Allis-Chalmers for the Bath County Project, Va. It has a maximum rating of 457 MW as a turbine and maximum operating head of 1,289 ft. The impeller/runner diameter is 20 ft 9 in with a synchronous speed of 257.1 rpm.

## 6. ENGINEERING

The earliest machinery still in use is the *dālu*—a water-raising instrument known to have been in use in the Sumerian civilization which originated c. 3500 bc in Lower Iraq—even earlier than the *Saqiyas* of the Nile.

### Largest Blast Furnace

The largest blast furnace is one with an inner volume of 179,040 cu ft and a 48-ft 6½-in diameter hearth at the Oita Works, Kyushu, Japan, completed in Oct 1976, with an annual capacity of 4,905,600 tons.

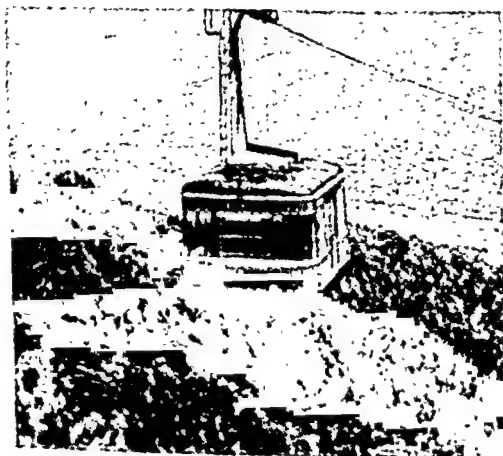
### Highest Cable Cars

The highest and longest aerial ropeway is the Teleférico Mérida (Mérida téléphérique) in Venezuela, from Mérida City (5,379 ft) to the summit of Pico Espejo (15,629 ft), a rise of 10,250 ft. The ropeway is in four sections, involving 3 car changes in the 8-mile ascent in one hour. The fourth span is 10,070 ft in length. The two cars work on the pendulum system—the carrier rope is locked and the cars are hauled by means of three pull ropes powered by a 230-hp motor. They have a maximum capacity of 45 persons and travel at 32 ft per sec (21.8 mph).

The longest single-span ropeway is the 13,500-ft-long span from the Coachella Valley to Mt San Jacinto (10,821 ft), Calif opened Sept 12, 1963.

### Largest Cat Cracker

The largest catalytic cracker is the Exxon Co's Bayway Refinery plant at Linden, NJ with a fresh feed rate of 5,040,000 gallons per day.



**HIGHEST CABLE ROPEWAY:** The Teleférico Mérida in Venezuela is also the longest. It rises 5,379 ft to the summit of Pico Espejo at 15,629 ft above sea level. The cable car ride takes an hour. (South American Picture)



## Longest Conveyor Belt

The longest single-flight conveyor belt is one of 18 miles in W Australia by Cable Belt Ltd of England.

The longest multi-flight conveyor is one of 62 miles between the phosphate mine near Bucraa and the Atlantic port of El Aaiun, Morocco, built by Krupp and completed in 1972. It has 11 flights of between 5.6 and 6.8 miles in length and was driven at 10.06 mph, but has been closed down due to Polisario Front guerilla activity.

## Most Powerful Cranes

The most powerful cranes are those aboard the semi-submersible vessel *Balder* operated by Heerema Marine Contractors, Switzerland. It has one 3,000 and one 2,000 ton capacity crane which, working in tandem, can raise a 5,000 ton piece. Its capacity has now been raised to close to 6,600 tons.

Brown & Root (US) announced the building of a 150,000-ton crane-ship with lifting capacity of more than 7,000 tons in Dec 1983.

The 92.3-ft-wide Rahco (R. A. Hanson Disc Ltd.) gantry crane at the Grand Coulee Dam Third Powerplant was tested to lift a load of 2,500 tons in 1975. It successfully lowered a 3,944,000-lb generator rotor with an accuracy of 1/32 in.

The tallest mobile crane is the 890-ton Rosenkranz K10001 with a lifting capacity of 1,100 tons and a combined boom and jib height of 663 ft. It is carried on 10 trucks, each limited to 75 ft 8 in and an axle weight of 130 tons. It can lift 33.6 tons to a height of 525 ft.

## Dragline Excavators

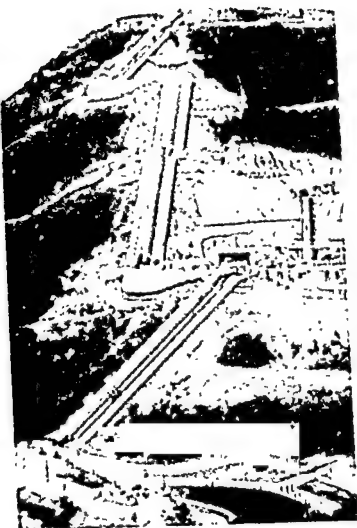
The Ural Engineering Works at Ordzhonikidze, USSR, completed in March 1962, has a dragline known as the ES-25(100) with a boom of 328 ft and a bucket with a capacity of 31.5 cu yd. The largest walking dragline (and also the largest automotive land vehicle) is "Big Muskie," the Bucyrus-Erie 4,250W with an all-up weight of 13,440 tons and a bucket capacity of 220 cu yd on a 310-ft boom. This, the largest mobile land machine, is now operating on the Central Ohio Coal Co's Muskingum site in Ohio.

## Fastest Passenger Elevators

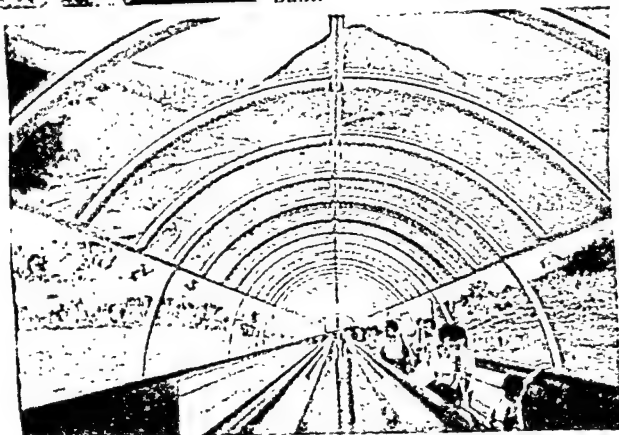
The fastest domestic passenger elevators are the express elevators to the 60th floor of the 787.4-ft-tall "Sunshine 60" building, Ikebukuro, Tokyo, Japan, completed Apr 5, 1978. They were built by Mitsubishi Corp and operate at a speed of 2,000 ft per min, or 22.72 mph.

Much higher speeds are achieved in the winding cages of mine shafts. A hoisting shaft 6,800 ft deep, owned by Western Deep Levels Ltd in South Africa, winds at speeds of up to 40.9 mph (3,595 ft per min). Descending at a speed of even 10 mph causes "otitis" (popping of the ears).

Graham Coates (UK) established an involuntary duration record when trapped in an elevator for 62 hours in Brighton, Eng, May 24-26, 1986



**MOVING STAIRWAY TO THE STARS:** (Left) In 4 stages outdoors at Ocean Park, Hong Kong, this escalator has an overall length of 745 ft, rising 377 ft from bottom to top. (Below) The luxurious covered stairs can carry 4,000 passengers in either direction at the same time, making it the longest and largest escalator ride ever built.



## Largest Excavator

The largest excavator is the 14,325-ton bucket wheel excavator being assembled at the open-cast lignite mine of Hambach, W Germany with a rating of 260,000 cu yd per 20-hour working day. It is 690 ft in length and 269 ft tall. The wheel is 222 ft in circumference with 6.5-cu-yd buckets.

## First and Longest Escalators

The name "escalator" was registered in the US on May 28, 1900, but the earliest "Inclined Elevator" was installed by Jesse W. Reno on the pier at Coney Island, NYC in 1896.

The longest escalators on the Leningrad Underground, USSR, at Lenin Square, have 729 steps and a vertical rise of 195 ft 9½ in.

The longest "moving sidewalks" are those installed in 1970 in the Neue Messe Centre, Düsseldorf, W Germany, which measure 738 ft between comb plates.

### **Largest Forging**

The largest forging on record is a generator shaft 55 ft long weighing 450,600 lb forged by Bethlehem Steel in Oct 1973 for Japan.

### **Largest Fork-Lift Truck**

Kalmar LMV of Sweden manufactured in 1985 10 counter-balanced fork-lift trucks capable of lifting loads up to 88.4 tons at a load center of 90.5 in. They were built to handle the large diameter pipeline in the Libyan "Great Man-Made River Project."

### **Largest Lathe**

The largest lathe is the 126-ft long 458.6-ton giant lathe built by Waldrich Siegen of Germany in 1973 for the South African Electricity Supply Commission at Rosherville. It has a capacity for 330-ton work pieces and a swing-over bed 16 ft 5 in in diameter.

### **Greatest Lifting Operation**

The heaviest lifting operation in engineering history was of the 41,000-ton roof of the Velodrome in Montreal, Canada, in 1975. It was raised some 4 in by jacks to strike its centering.

### **Slowest Machine**

A nuclear environmental machine for testing stress corrosion has been developed by Nene Instruments of Wellingborough, Eng., that can be controlled at a speed as slow as one million millionth of a millimetre per minute, or 3.28 ft in about 2,000 million years.

### **Largest Nuts**

The largest nuts ever made weigh 11,713.5 lb each and have an outside diameter of 52 in and a 25-in thread. Known as "Pilgrim Nuts," they are manufactured by Doncasters Moorside Ltd of Oldham, England, for use on the columns of a large forging press.

### **Largest Oil Tanks**

The largest oil tanks ever constructed are the five Aramco 1½ million-barrel capacity storage tanks at Ju'aymah, Saudi Arabia. The tanks are 72 ft tall with a diameter of 386 ft and were completed Mar 1980.



**LARGEST FORK LIFT:** Manufactured by Kalmar LMV of Sweden, this monster is shown lifting a load of 80 metric tonnes. (J. Barnes)

## Longest Pipelines

The longest crude oil pipeline is the Interprovincial Pipe Line Co's installation from Edmonton, Alberta, Canada, to Buffalo, NY, a distance of 1,775 miles. Along the length of the pipe 13 pumping stations maintain a flow of 8,280,000 gallons of oil per day.

The eventual length of the Trans-Siberian Pipeline will be 2,319 miles, running from Tuymazy through Omsk and Novosibirsk to Irkutsk. The first 30-mile section was opened in July 1957.

The world's most expensive pipeline is the Alaska Pipeline running 798 miles from Prudhoe Bay to Valdez. By completion of the first phase in 1977 it had cost at least \$6,000 million. The pipe is 48 in in diameter and will eventually carry up to 2 million barrels of crude oil per day.

The longest submarine pipeline is that of 264 miles for natural gas from the Union Oil Platform to Rayong, Thailand, opened on Sept 12, 1981.

The longest natural gas pipeline is the Trans-Canada Pipeline which by 1974 had 5,654 miles of pipe up to 42 in in diameter. The Tyumen-Chelyabinsk-Moscow-Brandenburg gasline stretches 2,690 miles.

The longest water pipeline runs a distance of 350 miles to the Kalgoorlie gold fields from near Perth, W Australia. Engineered in 1903, the system has since been extended five-fold by branches.

The large caliber Urengoi-Uzhgovod line to W Europe begun in Nov 1982 stretched 2,765 mi when completed on July 25, 1983. It has a capacity of 42,000 million cu yd per year.

## Largest Press

The two most powerful production machines are forging presses in the US. The Loewy closed-die forging press, in a plant leased from the US Air Force by the Wyman-Gordon Co at North Grafton, Mass

weighs 10,600 tons and stands 114 ft 2 in high, of which 66 ft is sunk below the operating floor. It has a rated capacity of 50,000 tons, and went into operation in Oct 1955. The other similar press is at the Aluminum Company of America in Cleveland.

There has been a report of a press in the USSR with a capacity of 83,025 tons at Novo Kramatorsk. The Bêché and Grohs counterblow forging hammer, manufactured in W Germany, is rated at 66,000 tons.

### **Fastest Printer or Typesetting Machine**

The fastest printer is the Radiation Inc electro-sensitive system at the Lawrence Radiation Laboratory, Livermore, Calif. High speed recording of up to 30,000 lines per min, each containing 120 alphanumeric characters, is attained by controlling electronic pulses through chemically impregnated recording paper which is rapidly moving under closely spaced fixed styli. It can thus print the wordage of the whole Bible (773,692 words) in 65 sec—3,333 times as fast as the world's fastest human typist.

### **Largest Radar Installations**

The largest of the three installations in the US Ballistic Missile Early Warning System (BMEWS) is the one near Thule, Kalaatdlet Nunaat (Greenland) 931 miles from the North Pole, completed in 1960 at a cost of \$500 million. Its sister stations are at Cape Clear, Alaska, completed in July 1961, and a \$115 million installation at Fylingdales Moor, North Yorkshire, Eng completed in June 1963. The largest scientific radar installation is the 21-acre ground array at Jicamarca, Peru.

### **Largest Transformer**

The largest single-phase transformers are rated at 1,500,000 kV of which 8 are in service with the American Electric Power Service Corporation. Of these, 5 step down from 765 to 345 kV.

### **Longest and Highest Transmission Lines**

The longest span between pylons of any power line is that across the Sogne Fjord, Norway, between Rabnaberg and Fatlaberg. Erected in 1955 by the Whitecross Co Ltd of Warrington, England as part of the high-tension power cable from Refsdal power station at Vik, it has a span of 16,040 ft and a weight of 13 tons. In 1967, two further high-tensile steel/aluminum lines 16,006 ft long, and weighing 37 tons, manufactured by Whitecross and British Insulated Callender's Cables Ltd, were erected here.

The highest power lines are those across the Straits of Messina, with towers of 675 ft (Sicily side) and 735 ft (Calabria) and 11,900 ft apart.

The highest voltages now carried are 1,330,000 volts on the DC Pacific Inter-tie in the US for a distance of 1,224 miles. The Ekibastuz DC transmission lines in Kazakhstan, USSR, are planned to be 1,490 miles long with a 1,500,000-volt capacity.

### **Largest Valve**

The largest valve is the 32-ft diameter 190-ton butterfly valve

designed by Boving & Co Ltd of London for use at the Arnold Air Force Base engine test facility in Tennessee.

## Longest and Strongest Wire Rope

The longest wire ropes are the 4 made at British Ropes Ltd, Wallsend, Tyneside, England, each measuring 14.9 miles. The ropes are 35 mm in diameter, weigh 120 tons each and were ordered for use in the construction of the 2,000 MW cross-Channel power cable.

The thickest ever made are spliced crane strops 11¼ in thick, made of 2,392 individual wires in March 1979 by British Ropes at Millington Quay, Tyneside, England, designed to lift loads of 3,000 tons.

The heaviest wire ropes (4 in number) are each of 130 metric tons, made for the twin-shaft system of Western Deep Levels Gold Mine, South Africa.

## TIMEPIECES

### Oldest Clocks

The earliest mechanical clock, that is, one with an escapement, was completed in China in 725 AD by I Hsing and Liang Ling-tsan.

The oldest surviving working clock is the faceless clock dating from 386, or possibly earlier, at Salisbury Cathedral, Wiltshire, England, which was restored in 1956 having struck the hours for 498 years and ticked more than 500 million times. Earlier dates, ranging back to c. 335, have been attributed to the weight-driven clock in Wells Cathedral, Somerset, England, but only the iron frame is original. A model of Giovanni de Dondi's heptagonal astronomical clock of 1348-64 was completed in 1962.

### Public Clocks

The largest four-faced clock is that on the building of the Allen-Bradley Co of Milwaukee, Wis. Each face has a diameter of 40 ft 3½ in with a minute hand 20 ft in overall length.

The largest single-faced clock is the octagonal Colgate clock on the Hudson River shore in Jersey City, NJ, which has a 50-ft diameter and a minute hand 27 ft 3 in in length.

The tallest four-faced clock is on the Williamsburgh Savings Bank, Brooklyn, NYC. It is 430 ft above street level.

### Most Accurate Time Measurer

The most accurate time-keeping devices are the twin atomic hydrogen masers installed in 1964 in the US Naval Research Laboratory, Washington, DC. They are based on the frequency of the hydrogen atom's transition period of 1,420,450,751,694 cycles per sec. This enables an accuracy to within one sec in 1,700,000 years.

### Largest Clock

The most massive clock is the Astronomical Clock in the Cathedral of St Pierre, Beauvais, France, constructed between 1865 and 1868. It contains 90,000 parts and measures 40 ft high, 20 ft wide and 9 ft deep. The Su Sung clock, built in China at K'aifeng in 1088-92, had



installed by Hattori Tokeiten Co. in the Shinjuku NS Building, Tokyo, Japan, in 1983.

### Largest Sundial

The largest is the Samrat Yantra in Jaipur, India, built in 1724. It has a gnomon (column) height of 88.5 ft.

### Oldest Watch

The oldest watch (portable clockwork timekeeper) is one made of iron by Peter Henlein in Nürnberg, Bavaria, Germany, c. 1504. The earliest wristwatches were those of Jaquet-Droz and Leschot of Geneva, Switzerland, dating from 1790.

### Longest and Heaviest Watches

A facsimile "Swatch" watch was made for demonstration and draped from the roof of the Bank of Bilbao in Madrid, Spain, Dec 7-12, 1985. It was 531 ft 6 in long, and 65 ft in diameter.

The "Eta" watch on the Swiss Pavilion at Expo 86 in Vancouver, BC, Canada, from May-Oct 1986, weighed 38½ tons and stood 80 ft high.

### Smallest and Thinnest Watch

The smallest watches are produced by Jaeger Le Coultre of Switzerland. Equipped with a 15-jeweled movement, they measure just over ½ in in length and 3/16th in in width. The movement, with its case, weighs under ¼ oz.

The thinnest wristwatch is the Swiss Concord Delirium IV which measures 0.039 in (0.98 mm) in thickness and retailed for \$16,000 in June 1980 with an 18-carat gold bracelet.

### Most Expensive Watches

Excluding watches with jeweled cases, the most expensive standard men's pocket watch is the Swiss *Grande Complication* by Audemars-Piguet, which retailed for \$336,000 in Mar 1987, up from \$100,000 a few years ago.

The record price for an antique watch is \$1,005,375 paid at Christie's, Geneva, Switzerland on May 13, 1986 by a European collector for a gold-enameled and diamond-set pocket watch with a movement from c. 1650, by the Parisian maker Jehan Cremfidorff. At the same auction, \$153,750 was paid for a 1955 Patek Philippe wristwatch, one of only three. It includes a perpetual calendar and records the phases of the moon.

### Computers

A geared calculator dated c. 80 bc was found in the sea near Antikythera Island off northwest Crete in April 1900.

The earliest programmable electronic computer was the 1,500-valve Colossus. It was run in Dec 1943 at Bletchley Park, England, to break the German coding machine Enigma. It arose from a concept published in 1936 by Dr Alan Mathison Turing (1912-54). It was declassified on Oct 25, 1975.

The first stored-program computer was the Manchester University





## **Most Powerful and Fastest Computer**

The world's most powerful and fastest computer is the liquid-cooled Cray-2, named after Seymour R. Cray of Cray Research, Inc., Minneapolis. Its memory has a capacity of 256 million 64-bit words, resulting in a capacity of 32 million bytes of main memory. It attains speeds of 250 million floating point operations per sec. The cost of a mid-range system was quoted in Oct 1985 at \$17 million.

## **Smallest Word Processor**

The world's smallest word processor, the Easi-Text 1350, was introduced by minimicro of Huntington, Eng, in Apr 1986. It is based on the Sharp PC-1350 computer which measures  $7.2 \times 2.8 \times 0.6$  in and the entire system including an A4 size Epson P-80 printer fits into an executive briefcase.

## **Megabits**

The megabit barrier was broken in Feb 1984, with the manufacture of a 1024K bit integrated circuit, the size of a drawing pin head and as thin as a human hair, by 4 Japanese companies, Hitachi, NEC, NTT Atsugi Electrical Communications and Toshiba. Toshiba announced that manufacture of an 80 picosecond LSI (large scale integration) chip of gallium arsenide would start in 1985-86.

IBM had announced the first 512K bit 120 nanosecond dynamic access memory chip  $\frac{3}{8}$  in square from Essex Junction, Vt, on Sept 15, 1983.

## **Fastest Transistor**

A transistor capable of switching 230,000 million times per sec was announced by Illinois State University on Oct 5, 1986

## Chapter 9

# The Business World

*In this chapter, the pound sterling has been converted, unless otherwise noted, at an average exchange rate of £1 = \$2.20 for 1979, \$2.30 for 1980, \$1.80 for 1981, \$1.56 for 1982, \$1.50 for 1983, \$1.40 for 1984 and early 1985, \$1.50 for late 1985 and early 1986, \$1.60 for late 1986 and 1987, and at the prevailing exchange rates for earlier years.*

### 1. COMMERCE

#### Greatest Assets

The business with the greatest amount in physical assets has been the Bell System, which comprised the American Telephone and Telegraph Company, and its subsidiaries. The Bell System's total assets on the consolidated balance sheet at the time of its divestiture and breakup into 8 companies on Dec 31, 1983 reached \$149,529 million. The plant included more than 142 million telephones. The number of employees was 1,036,000. The company's market value of \$47,989 million was held among 3,055,000 shareholders. A total of 20,109 shareholders had attended the Annual Meeting in Apr 1961, thereby setting a world record.

Currently the largest assets of any corporation are \$72,593 million by the Exxon Corporation, the world's largest oil company, on Jan 1, 1987. It has 102,000 employees. The first company to have assets in excess of \$1 billion was the United States Steel Corporation with \$1,400 million at the time of its creation by merger in 1917.

#### Greatest Sales

The first company to surpass \$1 billion in annual sales was the US Steel Corporation in 1917. Now there are 570 corporations with sales exceeding \$1 billion including 272 from the US. The *Fortune 500 List* of Apr 1987 is headed by General Motors Corp of Detroit with \$102,813.7 million for 1986.

The largest single company in sales is Cargill Inc, the Minneapolis, Minnesota grain-trading company, with sales of \$32,000 million in 1985-86.

## Greatest Profit and Loss

The greatest net profit made by any corporation in 12 months is \$7,647 million by American Telephone and Telegraph Co. Oct 1, 1981-Sept 30, 1982.

The greatest loss ever recorded is also by AT&T, which lost \$4,900 million in the fourth quarter of 1983 immediately after the breakup of the monopoly, when losses had to be taken on a one-time basis.

The Argentine government-owned Petroleum Company (YPF) is reported to have lost \$4,643,995,000 in 1983.

## Greatest Bankruptcy

William G. Stern (b Hungary, 1936), of Golders Green, north London, England, a US citizen since 1957, who set up Wilstar Group Holding Co in the London property market in 1971, was declared bankrupt for \$229,480,345 in Feb 1979. This figure rose to \$314,875,000 by Feb 1983. He was discharged for \$600,000, suspended for 2½ years on Mar 28, 1983.

Exal Commodities declared it was in debt for a record £170 million (\$238 million) in London on Jan 18, 1985. In connection with this, Rajendra Sethia (b 1950) was arrested in New Delhi, India, on Mar 2, 1985, on charges including criminal conspiracy and forgery and was declared bankrupt as well by the High Court in London. His personal debts were estimated at £140 million (\$196 million).

## Largest Employer

The world's largest employer is Indian Railways with 1,613,280 staff in 1985-86.

## Largest Jury Award

A Texas jury on Dec 10, 1985 awarded the Pennzoil Company of Texas \$11.12 billion in a suit against Texaco, headquartered in White Plains, NY, for improperly enticing the Getty Oil Co to back out of a merger with Texaco in 1984.

## Greatest Barter Deal

The biggest barter in trading history was 36 million barrels of oil valued at \$10,800,000,000 given by the Royal Saudi Airline for 10 Boeing 747 airliners in July 1984.

## Largest Take-Overs

The largest corporate take-over agreement in commercial history is by Chevron (formerly Standard Oil Co. of California) which on June 15, 1984 bought Gulf Oil Corp for \$13,231,253,000. The fees of the financial intermediaries were estimated by *Fortune* to be \$63.9 million.

The greatest auction in the corporate world was the purchase of Hughes Aircraft Co by General Motors Corp for \$5,000 million on June 5, 1985.

## Accountants

The largest firm of accountants worldwide is that resulting from the

merger of Peat Marwick International and Klynveld Main Goerdeler of the Netherlands announced on Sept 3, 1986 with a combined annual revenue of \$2,700 million and a total of 58,000 employees.

### Advertising Agency

The largest advertising agency is Saatchi & Saatchi/Compton Ltd of London, following their acquisition of the US agency, Ted Bates Worldwide, announced on May 12, 1986. *Advertising Age* lists the group's billings at about \$8,255 million.

### Biggest Advertiser

The biggest advertiser is Sears Roebuck and Co with \$1,129.8 million spent in 1986, excluding its catalogue.

### Aerospace Company

The largest aerospace company is Boeing with 1986 sales of \$16,341 million and a work force of 118,500.

Cessna Aircraft Co of Wichita, Kans had total sales of \$539.5 million in 1986. The company holds the record for producing 176,300 aircraft since Clyde Cessna's first was built in 1911.

### Largest Airlines

The largest airline is the USSR State airline "Aeroflot," so named since 1932. This was instituted on Feb 9, 1923, with the title of Civil Air Fleet of the Council of Ministers of the USSR, abbreviated to "Dobrolet." It operates 1,650 aircraft over more than 620,000 mi of routes, employs 500,000 people and carried 112 million passengers to 122 cities in 97 countries in 1986. Some 70% of its routes are international, but domestic flights go to 3,600 towns.

The commercial airline carrying the greatest number of passengers was United Airlines, based in Chicago, which carried its peak passenger load of 41,273,000 in 1984. The line in 1986 had 319 planes operating, and 47,900 employees.

### Aluminum Producer

The largest producer of primary aluminum is Alcan Aluminium Ltd of Montreal, Canada with its affiliated companies. It had an output of 2,119,000 metric tons in 1986.

### Auctioneering

The largest and oldest firm of art auctioneers is the Sotheby Group of London and New York, founded in 1744. The turnover in 1985-86 was \$691,485 million.

The highest gross realization for a single-session fine arts auction was \$63,596,500 recorded by Sotheby's, NYC on May 11, 1987. The sale consisted of modern and impressionist paintings and sculpture.

The largest jewelry auction sale brought \$50,231,887 for the benefit of the Institut Pasteur when the jewels of the Duchess of Windsor (1896-1986) were sold at Sotheby's, Geneva, Switz, Apr 2-3, 1987.

### Bicycle Manufacturers

The world's biggest manufacturer of bicycles is Hero Cycles of

Ladhiana, Punjab, India founded in 1956 by the Munjal brothers. In 1986 they turned out 2,220,000 units. China is estimated to have 210 million bicycles.

## **Bookstores**

The bookshop with the most titles and the longest shelving (30 miles of it) is W. & G. Foyle Ltd of London. First established in 1904 in a small shop in Islington, the company is now at 119-125 Charing Cross Road. On one site, the area is 75,825 sq ft.

The most capacious individual bookstore measured by square footage is Barnes & Noble Bookstore on Fifth Avenue at 18th Street, NYC, with 154,250 sq ft and 12.87 miles of shelving.

## **Breweries**

The largest single brewing organization is Anheuser-Busch, Inc based in St Louis, with 11 breweries in the US. In 1986 the company sold 72,300,000 US barrels, the greatest annual volume ever produced by a brewing company. The company's St Louis plant covers 100 acres and after completion of current modernization will have an annual capacity in excess of 13,000,000 US barrels.

The largest brewery on a single site is Adolph Coors Co of Golden, Colo, where 14,738,000 barrels were sold in 1985.

## **Car Manufacturer**

In 1980, Japan with 11,043,000 vehicles overtook the US as the world's No. 1 motor car manufacturer.

The largest car manufacturer and largest manufacturing company in the world is General Motors Corp of Detroit. During the year 1986, worldwide sales totaled \$102,813,700,000. Its assets on Dec 31, 1986, were valued at \$72,593,000,000, and there were 875,000 employees.

The largest single automobile plant is the Volkswagenwerk, Wolfsburg, W Germany, with 65,000 employees and a capacity of 4,000 vehicles daily. The surface area of the factory buildings is 371 acres and that of the whole plant, with 43.5 miles of rail sidings, is 4,892 acres.

## **Chain Store**

F. W. Woolworth, which celebrated its centenary year in 1979, now operates the largest chain—6,309 stores worldwide. Frank W. Woolworth, with an idea that he could sell merchandise for a nickel, rented a counter in an already existent Watertown, NY, general store in 1878. Then he opened his first "Five Cent Store" in Utica, NY on Feb 22, 1879. This failed after 6 months. Next he opened a "Five Cent Store" in Lancaster, Pa, which soon became a "5c-&-10c Store." This succeeded. The 1986 income from continuing operations was \$214 million.

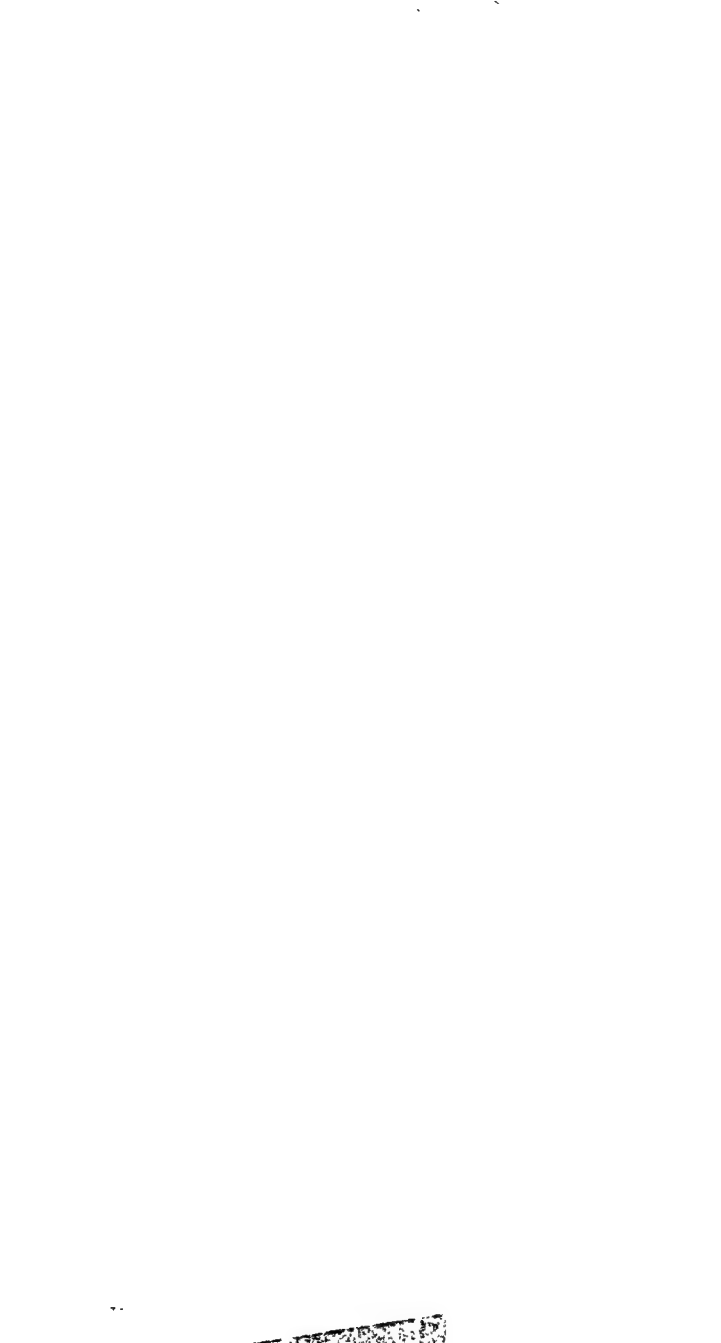
## **Chocolate Factory**

The largest chocolate and confectionary factory is that built by Hershey Foods Corp of Hershey, Pa in 1903-05. It now has 2 million sq ft of floor space.











## Restaurants

The largest restaurant chain is McDonald's Corp in Oakbrook, Ill., founded Apr 15, 1955, in Des Plaines, a suburb of Chicago, by Ray A. Kroc (1903-84), BH (Bachelor of Hamburgerology). By Dec 31, 1986, the number of restaurants licensed and owned in 45 countries and territories reached 9,401 with an aggregate output of 60 billion 100% beef hamburgers. Sales systemwide in 1986 surpassed \$12.4 billion.

By purchasing the Kentucky Fried Chicken chain of 6,500 restaurants, Pepsico Inc., which already owned the Pizza Hut and Taco Bell chains, is the conglomerate with most restaurants—14,000.

## Shipbuilding

In 1986, there were 16,844,909 gross tons of ships, excluding sailing ships, barges, and vessels of less than 100 gross tons, completed throughout the world. The figures for the USSR, Rumania and the People's Republic of China are incomplete. Japan completed 8,177,953 gross tons (48.55% of the world's total).

The leading shipbuilding firm in 1986 was Hyundai of S Korea which completed 43 vessels of 1,925,882 gross tons.

## Shipping Line

The largest shipping owners and operators are the Exxon Corporation, whose fleets of owned/managed and chartered tankers in 1986 totaled a daily average of 10,200,000 deadweight tons.

## Shopping Centers

The largest shopping center is the \$1,100 million W Edmonton Mall, Alberta, Canada, first opened on Sept 15, 1981 and completed 4 years later. It covers 5.2 million sq ft on 110 acres, encompasses 828 stores and services, as well as 6 major department stores. Parking is provided for 20,000 vehicles for more than 500,000 shoppers per week.

The world's first shopping center was Roland Park Shopping Center in Baltimore, Md., built in 1896.

The world's largest wholesale merchandise market is the Dallas Market Center, located on Stemmons Freeway, Dallas, Tex. It has nearly 9.3 million sq ft in 8 buildings. The complex covers 100 acres with some 3,400 permanent showrooms displaying merchandise of more than 26,000 manufacturers. The center attracts 600,000 visitors each year to its 38 annual markets and trade shows.

## Soft Drink Producer

The world's most popular soft drink is Coca-Cola with 6 billion cans sold per day by early 1985 in more than 155 countries. "Coke" was invented by Dr John S. Pemberton of Atlanta in 1886, the company was formed in 1892, and its famous bottle was patented in 1915. The secret "7X" formula was unchanged until 1975 when Coca-Cola had 21.7% of the \$28 billion market to Pepsi's 18.8%.

Pepsico's overall 1986 sales of \$9.3 billion were \$600 million higher than Coca-Cola's in 1986.

## Steel Company

The largest producer of steel in the non-Communist world has been Nippon Steel of Tokyo, which produced 26,270,000 tons of steel and steel products in 1986. The Fukuyama Works of Nippon Kokan has a capacity of more than 17 million tons per annum. Its work force is 76,000.

## Sugar Mill

The highest recorded output for any sugar mill was set in 1966-67 by Ingenio de San Cristobal y Anexas, S.A. of Veracruz, Mexico, with 273,310 tons refined from 3,181,897 tons of cane ground.

The largest cane sugar plant is the California & Hawaii Sugar Co plant founded in 1906 at Crockett, Calif with an output of 8 million lb per day.

## Tobacco Company

The largest tobacco company is the group of subsidiaries and affiliates of B.A.T. Industries (British-American Tobacco Co Ltd, founded in London in 1902). They operate 120 tobacco factories in 50 countries. Consolidated turnover in 1986 was \$30,667.2 million and total assets were \$14,984 million Dec 31, 1986. The Group's sales in 1986 topped 577 billion cigarettes.

The largest cigarette plant is the \$1 billion Reynolds Tobacco Co plant at Tobaccoville, NC opened in Sept 1986, which produces more than 110 billion cigarettes per year.

## Toy Store

The biggest toy store is Hamley's of Regent Street Ltd, founded in London in 1760 in the Holborn area, and moved to Regent Street in 1901. It has selling space of 45,000 sq ft on 6 floors with over 300 employees during the Christmas season.

## Undertaker (or Mortician)

The world's largest undertaking business is the SCI (Service Corporation International) with 371 funeral homes and 12 flower shops and limousine fleets with associated cemeteries. Their annual revenue in this most recession-proof of industries was \$263,952,000 in the year ending Apr 30, 1986.

## FINANCE

The oldest Stock Exchange of the 138 listed in the world is said to be that in Amsterdam, The Netherlands, founded in 1602.

## Largest Investment House

The largest securities company and once the world's largest partnership (124 partners before becoming a corporation in 1959), is Merrill Lynch, Pierce, Fenner & Smith, Inc of NYC (founded Jan 6, 1914). Its parent, Merrill Lynch & Co, has assets of \$53 billion, 47,000 employees, more than 1,000 offices around the world, and 5 million customer accounts.

## Highest Value Stock

The highest price quoted for a share of F. Hoffmann-La Roche of Basel, Switzerland, was 101,000 Swiss Fr (then \$38,486) on Apr 23, 1976.

## New York Stock Exchange (NYSE) Records

New records in 1986 and 1987 have been set almost daily to the point where an annual book of this kind cannot do more than publish the most unusual. Daily and weekly newspapers must be consulted for latest records.

The record for a day's trading is 302,469,040 shares on Jan 23, 1987.

The record-setting daily increase was set on Apr 3, 1986 when the Dow Jones index increased 69.89 points.

## Largest Reverse Stock Split

On June 7, 1982, Madison National Life Insurance Co of Middleton, Wis split its stock selling over-the-counter 20,000 to 1, specifically reducing authorized shares from 1,500,000 to 75 shares total.

## Largest New Issue

The largest security offering in history was one of \$1,375 million in American Telephone and Telegraph Co stock in a rights offer of 27,500,000 shares of convertible preferred stock on June 2, 1971.

## Greatest Personal Loss and Gain

The highest recorded personal paper losses on stock values have been those of Ray A. Kroc, chairman of McDonald's Corp with \$64,901,718 on July 8, 1974 and Edwin H. Land, president of Polaroid Corp with \$59,397,355 May 28-29, 1974, when Polaroid stock closed down \$12 1/2 on that day.

An investor who paid \$375 in the morning of Dec 10, 1985 for an option on Pennzoil could have cashed it at the end of the same day for \$10,250, for the fastest gain in history. The stock jumped from 19 1/2 to 83 that day.

## Largest Bank

The International Bank for Reconstruction and Development (founded Dec 27, 1945), the "World Bank" (a UN specialized agency) at 1818 H Street NW, Wash, DC, has an authorized share capital of \$92.6 billion. There were 150 members with a subscribed capital of \$77,527 million on June 30, 1986. The International Monetary Fund in Wash, DC, had 151 members with total quotas of SDR 89,987.6 million (\$114,068.28 million) as of Apr 1987.

The biggest commercial bank is Dai-Ichi Kangyo Bank Ltd of Japan with assets in March 1986 of \$207,000 million.

The bank with the most branches is the State Bank of India which had 11,171 branches on Jan 1, 1987, with assets of \$26,340 million.

## LAND

The world's largest landowner is the United States Government, with a holding of 732 million acres (1,143,800 sq mi), which is more than the area of the 8th largest country, Argentina, and 12.8 times larger than the UK. The world's largest private landowner is reputed to be International Paper Co, with 9 million acres.

### Land Values

Currently the most expensive land is in the Ginza district of Tokyo, where the site of the Crown nightclub was bought on Oct 28, 1985 for \$18,300 per sq ft.

The price for a grave site with excellent *Fung Shui* in Hong Kong may cost US \$33,800 for a 4 × 10 ft plot. The China Square Inch Land Ltd at a charity auction on Dec 2, 1977 sold 1 sq cm (0.155 sq in) of land at Sha Tau Kok for HK \$2,000 (the equivalent of US \$17,405,833,737 per acre).

### Greatest Urban Land Sale

The 3 square blocks of land under Rockefeller Center, NYC, were sold by Columbia Univ to Rockefeller Center for \$400 million in Mar 1985.

### Highest and Lowest Rent

The highest rentals in the world for prime sites are in Tokyo, Japan (\$98.64 per sq ft) compared with Manhattan, NYC (\$63 per sq ft) and London (\$61.6), but with service charges and taxes added, Tokyo's rates may reach \$123 per sq ft, while London's rates reach \$87 per sq ft.

The rent for a 3-room apartment in the Fuggerei in Augsburg, W Germany, since it was built by Jacob Fugger in 1519, has been 1 Rhine guilder (now DM 1.72 or less than \$1) per month. Fugger was the extremely wealthy philanthropist who pioneered social welfare.

### Greatest Land Auction

The greatest auction ever was that at Anchorage, Alaska, on Sept 11, 1969, for 179 tracts of 450,858 acres of the oil-bearing North Slope, Alaska. An all-time record bid of \$72,277,133 for a 2,560-acre lease was made by the Amerada Hess Corporation-Getty Oil consortium. The bid indicated a price of \$28,233 per acre.

## 2. MANUFACTURED ARTICLES

### Antique

The largest antique ever sold has been the London Bridge in March 1968. The sale was made by Ivan F. Luckin of the Court of Common Council of the Corporation of London to the McCulloch Oil Corp of Los Angeles for \$2,460,000. Over 10,000 tons of facade stonework were reassembled at a cost of \$6.9 million at Lake Havasu City, Ariz and "rededicated" Oct 10, 1971.

### Auction

The highest amount ever paid at auction for a paged work was \$11.9 million for a 12th-century illuminated manuscript "The Gospels of Henry the Lion" at Sotheby's, London Dec 6, 1983. (See page 133.)

### Basket

The biggest basket ever made was 15 ft tall, woven by Nineteenth Century Basket Co, Warren, Ohio in 1986.

### Bathtub

A bathtub made entirely of gold, with an appraised value of \$5 million, was reported in Lagos, Nigeria in Jan 1984. Owned by a former high-ranking official of the ousted government, it was taken into his vacation home in England. The underwriters called to insure the house agreed to insure everything but the tub, and suggested it be left in a bank.

### Beds

The bed made in 1984 for Stephen King's "Cat's Eye" movie set a new record 40 ft 9 in long, 20 ft 9 in wide, with headboard 21 ft 1 1/2 in high, and footboard 15 ft 8 1/4 in high. The pillows measured 12 ft by 8 ft.

The heaviest bed is a waterbed 12 ft wide and 15 ft 4 in long, made in Nov 1986 by Atlantic Waterbeds of Yarmouth, Nova Scotia. It holds 1,050 gallons of water, weighing over 5 tons.

### Blankets

The largest blanket ever made measured 68 x 100 ft and weighed 600 lb. It was knitted in 20,160 6-in squares in 10 months (Oct 1977-July 1978) by the English *Woman's Weekly* readers for Action Research for The Crippled Child.

### Candle

A candle 80 ft high and 8 1/2 ft in diameter was exhibited at the 1897 Stockholm Exhibition by the firm of Lindahls. The overall height was 127 ft.

Currently the largest candle is made by the Atletiek-en Trimvereniging Tegelen Sportsclub of Tegelen, The Netherlands, on June 1, 1986. It stands 89 ft 1 in high.





## Chandeliers

The largest chandeliers were a set of 10 built for the palace of the Sultan of Brunei in 1983. (See page 163).

The largest chandelier in Britain (and possibly in the world) is the 30-ft-diameter chandelier in the Chinese Room at the Royal Pavilion, Brighton, which was made in 1818 and weighs 2,200 lb.

## Cigars

The largest cigar ever made measures 16 ft 8½ in, weighs 577 lb 9 oz, and contains 3,330 tobacco leaves wrapped around a core of cardboard. It took Tinus Vinke and Jan Weijmer 243 hours to make and is now in the Tobacco Museum in Kampen, The Netherlands.

The largest marketed cigar in the world is the 14-in Valdez Emperado by San Andres Cigars.

The most expensive standard cigar, the 9¼-in-long Montecristo "A" retails at \$21.50.

## Cigarettes

World production in 1985 was 9,873 billion cigarettes.

The people of China, were estimated to consume 1,180 million in 1985.

The world's most popular cigarette is "Marlboro," a filter cigarette made by Philip Morris, which sold 268 billion units in 1985.

The longest cigarettes ever marketed were "Head Plays," each 11 in long and sold in packets of 5 in the US in about 1930, to save tax. The shortest were "Lilliput" cigarettes, each 1¼ in long and ⅛ in in diameter, made in Great Britain in 1956.

## Cigarette Lighter

The most expensive table cigarette lighter is the 18-carat gold Dunhill Lighthouse lighter, in the shape of a lighthouse, set on an island base of amethyst. It weighs 35.28 lb and the base weighs 112 lb. The windows of the lighthouse are amethyst. Priced at \$56,000 it was offered in 1985 at Alfred Dunhill, London

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## COLLECTIONS

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**BOTTLES (MINIATURE)** The largest reported collection of unduplicated miniature bottles is one of 26,794 by Apr 1986 by David M. Maund of Eastleigh, England

**BOTTLE CAPS** The largest collection of bottle caps is probably the collection of Helge Friholm of Soborg, Denmark, which consists of 44,217 different undamaged caps from 149 countries as of June 18, 1987.

**CARS.** The greatest collection of vintage cars is the William F. Harrah Collection in Reno, Nev. of 1,700, estimated in 1984 to be worth more than \$4 million. All but 300 of the collection have been sold, since Mr. Harrah died, and one car sold in 1987 for \$6.5 million. (See page 291)

**CIGAR BANDS.** Joseph Hruby of Lyndhurst, Ohio, has the largest known collection of cigar bands with 170,146 different examples, dating from c. 1895.

**CIGARETTES.** The largest collection of cigarettes is that of Robert E. Kaufman, MD, of NYC. In Apr 1986, he had 8,017 different brands of cigarettes with 43 kinds of tips made in 172 countries. The oldest brand represented is "Lone Jack," made in the US c. 1885.

**CIGARETTE CARDS.** The earliest known tobacco card is "Vanity Fair" dated 1876 issued by Wm S. Kimball & Co of Rochester, NY. The largest known collection is that of Edward Wharton-Tigar (b 1913) of London with a collection of more than 1 million cigarette cards in about 45,000 sets.

The most valuable card is one of an alleged 30 known "Sweet Caporal" baseball series cards of Honas Wagner, who was a non-smoker, which was sold in New York in 1985 for \$25,500.

**CREDIT CARD COLLECTION.** The largest collection of valid credit cards, as of Apr 1986, is one of 1,196 all different, by Walter Cavanagh (b 1943) of Santa Clara, Calif (known as "Mr Plastic Fantastic"). The cost of acquisition was nil, and he keeps them in the world's longest wallet, 250 ft long, weighing 35 lb, worth more than \$1.3 million in credit.

**KEYS.** Harley O. (Rowdy) Yates of Tahoe, Calif, has collected 36,122 different keys from 50 companies in 53 years.

**MATCHBOX LABELS.** Collectors of labels are phillumenists. The oldest match label of accepted provenance is that of Samuel Jones c. 1830. The finest collection of trademark labels (excluding any bar or other advertising labels) is some 280,000 pieces collected by Robert Jones of Indianapolis.

**POSTAGE STAMPS.** See page 417.

**SALT AND PEPPER SHAKERS.** The largest collection consists of 12,746 sets, stored in two buildings in Traer, Iowa. It belongs to Mrs Ruth Rasmussen, who has been collecting since 1946.

**SPIRITS & LIQUEURS.** The largest reported collection of distilled spirits or liqueurs in any bar is 1,722 unduplicated labels collected by Ian Boasman at Bistro French, Preston, Lancashire, Eng, audited in May 1986. The greatest collection of whisky bottles is one of 3,100 unduplicated labels assembled by Sig Edward Giaccone at his Whisky-teca, Salo, Lake Garda, Italy.

**TEETH.** Brother Giovanni Battista Orsenigo of the Ospedale Fatebenefratelli, Rome, Italy, a religious dentist, conserved all the teeth he extracted. In 1903, the number was counted and found to be 2,000,744 teeth, indicating an average of 185 a day. (Also see p. 25.)

**WATCHES.** Robert Walker of Yakima, Wash, has a collection of 1,920 pocket and wrist watches, saved over 20 years as a hobby, according to Leonard Katz of the "National Enquirer." More watches (the more valuable ones,) are in a vault and were not counted with the others in May 1987.

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## Curtains

The largest functional curtain is one 550 ft long  $\times$  65 ft high in the Brabazon hangar at British Aerospace Filton, Bristol, used to enclose aircraft in the paint-spraying bay. It is electrically drawn.

The largest curtain ever built was the bright orange-red 414-107



**SMALLEST SPECTACLES:** Called a masterwork of precision by its constructor, these tiny eyeglasses will fit on no human face.



**LARGEST DUCK DECOY:** Constructed of bent plywood over a wood frame and overlaid with a fiberglass finish, this decoy, 20 ft long and 8 ft high, was built by Don Price of Santa Rosa, Calif., and was exhibited in Jan 1987 at the San Francisco Sports and Boat Show.

**BISCAYNE BAY** with man-made skirts. Christo, the artist who likes to wrap everything, draped the 11 islands off Miami shores in 1983. They looked like this from the air. © Christo 1980-83.

many as 155,000 hand-sewn tiny sequins and pearls per sq yd, designed by Alan Hershman of London; it cost \$975 per meter.

## Fireworks

The largest firework ever produced was *Universe I* exploded for the Lake Toya Festival, Hokkaido, Japan on Aug 28, 1983. The 928-lb shell was 42.5 in in diameter and burst to a diameter of 2,830 ft, with a 5-color display.

The longest firework, a "waterfall," was produced for the Yonago-Gaina Festival in Tottori, Japan and ignited at 8:55 PM on Aug 24, 1986. It measured 5,610 ft in length and 120 ft in height.

## Flags

The oldest known flag is one dating to c. 3000 BC, found in 1972 at Khablis, Iran. Made of metal, it measures 9 × 9 in, and depicts an eagle, lions and goddesses.

The largest flag made, "The Great American Flag," was first displayed in Evansville, Ind on Mar 22, 1980 (in 1981, in front of the Washington Monument in Washington, DC and on Flag Day 1983 on the Ellipse south of the White House). It weighs 7.7 tons and measures 411 × 210 ft. The project is the brainchild of Len Silverfine, who has donated it to the White House.

The largest flag flown from a flagstaff is a Brazilian national flag measuring 229 ft 3 in × 328 ft 1 in in the capital, Brasilia. The study of flags is known as vexillology.

## Floats

The largest float was the 155-ft-long, 24-ft-wide "Merry Christmas America" float bearing 3 double arches, a 17-ft Christmas tree, two 15-ft peppermint candy sticks and 5,380 sq ft of wrapping paper used at the 40th annual Christmas parade, Baton Rouge, LA, on Dec 5, 1986.

## Furniture

The largest item of furniture is the wooden bench in Green Park, Obihiro, Hokkaido, Japan, which seats 1,282 people and measures 1,321 ft 4 in long. It was completed by a team of 770 on July 19, 1981. (Also see *Sofa*.)

## Glass

The most priceless example of the art of glass-making is usually regarded as the Portland Vase which dates from late in the 1st century BC or 1st century AD. It was made in Italy and was in the possession of the Barberini family in Rome from at least 1642. It was eventually bought by the Duchess of Portland in 1792, but smashed while in the British Museum on Feb 7, 1845.

The thinnest glass made is 0.0003 in thick for liquid crystal display (LCD) watches by Corning Glass Works of NYC.

## Gold

The gold coffin of the 14th century BC Pharaoh Tutankhamun discovered by Howard Carter on Feb 16, 1923 in the Valley of the

Kings, western Thebes, Egypt weighed 243 lb. It is on exhibit in the Cairo Museum.

## Grill

A 328.7-ft-long grill was made for a barbecue at Barcelona, Spain, on Sept 22, 1986. A single *butifarra* (sausage) 5,917 ft in length was cooked on it.

## Jig-Saw Puzzles

The largest jig-saw puzzle was 84 ft 10½ in × 55 ft 2½ in with 15,520 pieces, constructed by the Monadnock United Way of Keene, NH at the Keene College gym, Sept 21-23, 1985.

Fujisankei Communications Group of Japan commissioned Yanoman Co to produce a puzzle 10.63 × 19.29 ft with 61,752 pieces. Each piece was sold for charity.

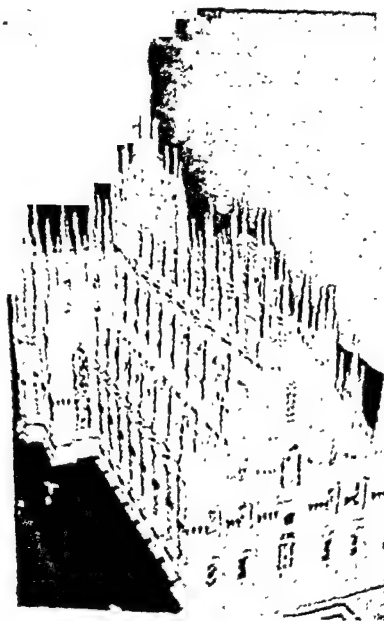
Custom-made Stave puzzles made by Steve Richardson of Vermont, of 2,300 pieces cost \$3,700 in Jan 1983.

## Knife

The penknife with the greatest number of blades is the Year Knife made by the cutlery Joseph Rodgers & Sons Ltd, of Sheffield, England, whose trademark was granted in 1682. The knife was made in 1822 with 1,822 blades, and was designed to match the year of the Christian era until 2000 AD, but had to halt at 1,973 because there was no more space for blades.

## MATCHSTICK

**CATHEDRAL:** Emmanuel George Venetucci of the Chicago area spent 12 years making this replica of Milan Cathedral with 1 million matchsticks and toothpicks.



## Matchstick Structure

Emmanuel George Venetucci (b Mar 26, 1925) of Palos Park, Ill, took 12 years (30,000 working hours) between 1950 and 1962 to make a matchstick replica of the Milan (Italy) Cathedral. It is 15 ft long, 8 ft wide and rises 10 ft from the floor to the top of the dome. Made of wooden and cardboard matches and toothpicks, it contains 1 million pieces total.

## Needles

The earliest needles were made of bone. The largest recorded needle is one 6 ft 1 in long made by George Davies of Thomas Somerfield, Eng, for stitching on mattress buttons lengthways. One is preserved in the National Needle Museum, Forge Mill, Redditch, Eng.

## Nylon

The lowest denier nylon yarn ever produced is the 6 denier used for stockings exhibited at the Nylon Fair in London in Feb 1956. The sheerest stockings normally available are 9 denier. An indication of the thinness is that a hair from the average human head is about 50 denier.

## Pens

The most expensive writing pens were 18-carat pairs of pens (one fiber-tipped and one ballpoint) capped by diamonds of 3.88 carats sold by Alfred Dunhill Ltd, London, for £9,943 (\$17,900) the pair.

The most expensive fountain pen was the Mont Blanc 18-carat gold and platinum nibbed Meisterstück made by Dunhill's in Hamburg, W Germany, which retailed in Jan 1983 for \$4,250.

## Pipe

A very large meerschaum pipe with a bowl fashioned into a portrayal of Antony and Cleopatra had been priced at \$15,000 by Racine and Laramie of San Diego, Calif, in Feb 1982.

## Pistol

In Dec 1983 it was reported that Mr Ray Bily (US) owned an initialled gold pistol made for Hitler which was valued for insurance purposes at \$375,000.

The pistol with the largest magazine capacity is the 22LR M.100P with 103 rounds of continuous firepower, manufactured by Calico, Bakersfield, Calif.

## Post Cards

Deltiology is claimed to be the third largest collecting hobby next only to stamps and coins. Austria issued the first cards in 1869 followed by Britain in 1872.

The highest price paid for a post card was \$4,400 for one of 5 known Mucha Waverly Cycle post cards. It was sold by Susan Brown Nicholson of Lisle, Ill, in Sept 1984.

## Quilts

The world's largest quilt, designed by A. Platteau, was made by the people of Kortrijk-Rollegem, Belgium. It comprises 16,240 squares measuring 69.6 x 99.5 ft. On Aug 28, 1982 it was hoisted by two cranes.

## Ropes

The largest rope ever made was a coir fiber launching rope with a circumference of 47 in made in 1858 for the British liner *Great Eastern* by John and Edwin Wright. It consisted of four strands, each of 3,780 yarns.

The longest fiber rope ever made without a splice was one of 10,000 fathoms (11.36 miles) of 6½-in circumference manila by Frost Brothers (now British Ropes Ltd) in London in 1874.

## Shoes

Emperor Bokassa of the Central African Empire (now Republic) commissioned pearl-studded shoes from the House of Berluti, Paris for his self-coronation in Dec 1977 at a cost of \$85,000.

The most expensive sports shoes obtainable are the mink-lined golf shoes with 18-carat gold embellishments and ruby-tipped gold spikes by Stylo Matchmakers International Ltd of Northampton, England, which retail for \$12,000 per pair.

The most valuable evening shoes are the pair produced by Reinhard Seufert of Stuttgart, W Germany. He values one shoe at \$26,000. The shoes are made of gold leather, with rhinestone screws, and adorned with an emerald (on one shoe only, the higher-valued one) brooch, jeweled initial of the wearer, and high heels encrusted also with stones. They are rented for a "pompous shoe effect" for stage and TV.

James Smith, founder of James Southall & Co of Norwich, England, introduced sized shoes in 1792.

The largest shoes ever sold, excluding those made for cases of elephantiasis, are a pair of size 42 built for the giant Harley Davidson of Avon Park, Fla. The largest shoes normally available are size 14.

For advertising and display purposes facsimiles of shoes and boots weighing up to 1½ tons have been constructed.

## Silver

The largest single pieces of silver are the pair of water jugs of 10,408 troy oz (867.3 troy lb) made in 1902 for the Maharaja of Jaipur (1861-1922). They are 5 ft 3 in tall with a circumference of 8 ft 1½ in and have a capacity of 1,800 Imperial gallons (2,162 US gallons). They are now in the City Palace, Jaipur. The silversmith was Gorin Narain.

## Sofa

The longest standard sofa manufactured for private use is the Kim Talmage Sofa, 12 ft 2 in in length made by the Talmageville Furniture Manufacturers, Calif. Barton Grange Hotel, near Farnham, Lancashire Eng bought a 14-ft-long pink leather settee for £1,551 (£3,930) on Oct 4, 1984.



## Table

The longest table was set up from La Punta to The Terramar, Sitges, Spain on Oct 4, 1986. It was 2,636.2 yds in length and was used to seat 6,400 people.

## Tablecloth

The world's largest tablecloth is one 219 yd long  $\times$  2 yd wide double damask, made by John S. Brown & Sons Ltd of Belfast, Ireland, and shipped to a royal palace in the Middle East. There was also an order for matching napkins for 450 places.

## Tapestries

The earliest known examples of tapestry-woven linen are the pieces from the tomb of Thutmose IV, the Egyptian pharaoh, dated from 1483 to 1411 bc.

The largest tapestry ever woven is the "History of Irak," with an area of 13,370.7 sq ft. Designed by the Yugoslavian artist Franjo Delale and completed in 1986, it adorns the wall of an amphitheatre in Baghdad.

## Time Capsule

The largest time capsule is the Tropico Time Tunnel measuring 10,000 cu ft in a cave in Rosamond, Calif., sealed by the Kern County Antelope Historical Society on Nov 20, 1966, and intended to open in the year 2866.

## Typewriters

The first patent for a typewriter was by Henry Mill in 1714, but the earliest known working machine was made by Pellegrine Turri (Italy) in 1808.

## Vase

The largest vase on record is one 8 ft high, weighing 650 lb, thrown by Sebastiano Maglio at Haeger Potteries of Dundee, Ill (founded 1872) during Aug 1976.

The Chinese ceramic authority, Chingwah Lee of San Francisco was reported in Aug 1978 to have appraised a unique 39-in K'ang Hsi 4-sided vase, then in a bank vault in Phoenix, Ariz., at \$60 million.

## Wallet

The most expensive wallet ever made is a platinum-cornered diamond-studded crocodile creation by Louis Quatorze of Paris and Mikimoto of Tokyo selling at £56,000 (\$72,000) in Sept 1984.

## Wreaths

The most expensive wreath on record was that presented to S. Chinmoy in NYC, on July 11, 1983 by Ashrita Furman and Paul Meltzer. It was handled by the Garland of Divinity's Love Florists and contained 10,000 flowers, and cost \$3,500.

## Zipper

The largest zip-fastener is 2,074 ft long, with 119,007 nylon teeth. It seals the covers of aquatic cables by RIRI, Mendrisio, Switzerland.

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## ANTIQUE SALES AT AUCTION

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**ART COLLECTION.** The collection of Robert von Hirsch (1883–1977), German industrialist, which included early medieval sculptures, madonnas, paintings of the masters and modern artists, was sold over a period of 7 days for the highest total ever—\$34,110,950 at Sotheby's London in the summer of 1978.

**ART NOUVEAU.** The highest auction price for any piece of *art nouveau* is \$360,000 for a spider-web leaded glass mosaic and bronze table lamp by L. C. Tiffany at Christie's, NYC on Apr 8, 1980.

**BED.** A 1930 black lacquer king-size bed made by Jean Durand was auctioned at Christie's, NYC on Oct 2, 1983 for \$75,000.

**BLANKET.** The most expensive blanket was a Navajo Churro handspun serape of c. 1852 sold for \$115,500 (including premium) at Sotheby's, NYC on Oct 22, 1983.

**CAROUSEL ART.** The highest price ever paid at auction for a carousel animal is \$35,200 for a large outside row tiger by Charles Loeff, Brooklyn, N.Y., c. 1900, at Phillips, New York, May 3, 1986. The tiger, 47 in high and 89 in long, has a snarling expression and wears jeweled fancy straps. He had been exhibited at the John and Mable Ringling Museum of Art.

**CARPET.** In 1946 the Metropolitan Museum of Art, NYC privately paid \$1 million for the 26.5 × 13.6 ft Anhalt Medallion carpet made in Tabriz or Kashan, Persia c. 1590. The highest price ever paid at auction for a carpet is £231,000 (\$360,000) for a 17th century "Polonaise" silk and metal thread carpet at Sotheby's, London on Oct 13, 1982.

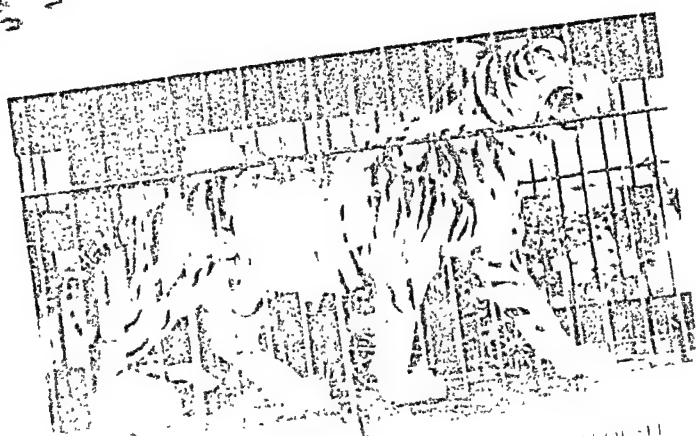
**CERAMICS.** The Greek urn painted by Euphronios and thrown by Euxitheos in c. 530 was bought by private treaty by the Metropolitan Museum of Art, NYC, for \$1.3 million in Aug 1972.

**CHESS SET.** The highest price paid at auction for a chess set (believed to be unique) is \$44,000 for a bronze set of 32 playing pieces, ranging in height from 2 3/4 to 5 in, executed in about 1950 by the noted Italian sculptor Alberto Giacometti (1901–66) at Sotheby's, NYC, May 12, 1987.

**CORKSCREW.** A 19th-century English-style bronze corkscrew was sold for £4,620 (\$6,468) at Sotheby's London on May 29, 1985.

**DOLL.** The highest price paid at auction for a doll is £67,100 (\$107,360) for a rare William and Mary period wooden doll, English, c. 1690, 14 1/2 in high at Sotheby's, London, March 24, 1987. It was purchased by Mme Didi Vierny for a planned doll museum in Paris.

**DOLLHOUSE.** The highest price ever paid for a dollhouse is \$256,500 for "Titania's Palace," consisting of 16 rooms, measuring 6 ft high, 12 ft wide and 8 ft deep, at Christie's, London, Jan 10, 1978. This magnificent dollhouse is the work of British miniaturist Sir





**HIGHEST-PRICED  
HAT:** This  
Alaskan Indian  
hat, sold in 1981  
for \$66,000 at  
Sotheby's, NYC.



**GLASS.** The record is £520,000 (\$1,040,000) plus premium for a Roman glass cage-cup of c. 300 AD measuring 7 in in diameter and 4 in in height, sold at Sotheby's, London, on June 4, 1979 to Robin Symes. It was the highest price paid for any antiquity.

**GOLD PLATE.** The highest price for any gold artifact is £950,400 (\$1,425,600) for a 22-carat font made by Paul Storr to the design of Humphrey Repton in 1797. It was sold by Lady Anne Cavendish-Bentinck and bought by Armitage of London at Christie's on July 11, 1985.

**GUN.** The highest price ever paid for a single gun is £125,000 (\$312,500) given by the London dealers, F. Partridge, for a French flintlock fowling piece made for Louis XIII, King of France, c. 1615 and attributed to Pierre le Bourgeois (d 1627) of Lisieux, France. This piece, now in the Metropolitan Museum of Art, NYC, was included in the collection of the late William Goodwin Renwick (US) sold by Sotheby's, London, Nov 21, 1972. (Also see Pistol )

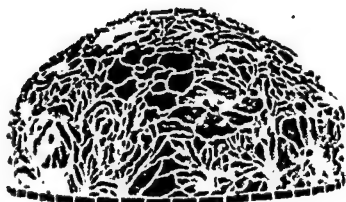
**HAT.** The highest price ever paid for a hat is \$66,000 by the Alaska State Museum at a NYC auction in Nov 1981 for a Tlingit Kiksadi ceremonial frog helmet from c. 1600

**JADE.** The highest price ever paid for an item in jade is \$396,000 (including premium) at Sotheby's, NYC on Dec 6, 1983 for a mottled brownish-yellow belt-hook and pendant mask of the Warring States Period of Chinese history.

**JEWELS.** The highest auction price paid for any jewels is \$4,237,500 approximately (with the buyer's premium, over \$4.6 million) for two pear-shaped diamond drop earrings of 58.6 and 61 carats at Sotheby's, Geneva, Switzerland, Nov 14, 1980. Neither the buyer nor seller was disclosed.

**MECHANICAL TOY.** The auction record is £25,500 (\$35,700) for a model train set of Stephenson's *Rocket* made by Marklin of Germany in tin plate in 1909 sold at Sotheby's, London on May 29, 1984.

**\$528,000 STAINED GLASS TIFFANY LAMP:** Made in 1910, this "Magnolia" floor lamp sold at Christie's, NYC in 1984.



**MIRRORS.** Twin Chippendale mirrors were sold for £280,000 (\$420,000) to Roy Miles, a London dealer, at Christie's, London, on Apr 10, 1986.

**MUSICAL BOX.** The highest price paid at auction for a single figure musical automaton is \$26,000 for a French Jumeau type, c. 1885, 26 in high, at Marvin Cohen Auctions, San Francisco, Mar 1, 1987.

**PAPERWEIGHT.** The highest price ever paid for a glass paperweight is \$143,000 (including premium) at Sotheby's, NYC on Dec 2, 1983 for a blue glass weight made at Pantin, Paris *post* 1850.

**PHOTOGRAPH.** The highest price ever paid at auction for a photograph is \$104,500 for a photo of Abraham Lincoln and son Tad at Sotheby's, Mar 27, 1985 by Malcolm Forbes, Jr.

**PISTOL.** The highest price paid at auction for a pistol is £110,000 (\$253,000) at Christie's, London on July 8, 1980 for a Sadeler wheel-lock holster pistol from Munich dated c. 1600.

**PLAYING CARDS.** The highest price paid for a deck of playing cards is \$143,352 (including premium) by the Metropolitan Museum of Art, NYC, at Sotheby's, London on Dec 6, 1983.

**PORCELAIN AND POTTERY.** The highest auction price for any ceramic or any Chinese work of art is £720,000 (\$1,296,000) (not including premium) for a blue and white Ming vase of 1426-35 bought by Hirano of Japan at Sotheby's, London, in Dec 1981.

**POT LID.** The highest price paid for a pot lid is \$6,336 for one depicting "Eastern Lady with Black Attendant" sold at Phillips, London, on Jan 7, 1987.

**SILVER.** The highest price ever paid for a single piece of English silver is £770,000 (\$1,232,000) for an *epergne* by de Lamerie sold at Christie's London, by the Earl of Portarlington and bought by Jacques Koopman on Dec 17, 1986. The 100-piece Paul de Lamerie service made for the 7th Earl of Thanet c. 1745 was sold by Lord Hothfield at Sotheby's, London on Nov 22, 1984 for £825,000 (\$1,031,250).

**STAINED GLASS.** The largest price paid at auction for any work in stained glass was \$528,000 for a 79½-in-high "Magnolia" floor type Tiffany lamp, c. 1910, at Christie's, NYC, Dec 15, 1984.

**SWORD.** The highest price paid for a sword is the £823,045

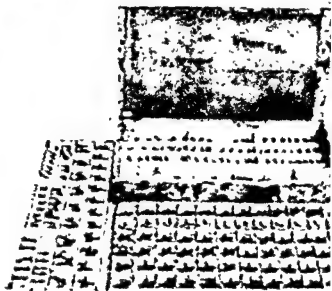
**\$9,152 TEDDY BEAR:** German-made by Steiff (1904), "Archibald" is 27 in tall, is yellow with a black snout and black boot button eyes. His joints swivel, he is covered with short plush, stuffed with excelsior and has a growler inside him. The record price was paid at Sotheby's London in Feb 1987.



**\$26,000 MUSICAL AUTOMATON:** This French Jumeau lady of 18 turns her head when the music starts playing and taps the wand of her right hand in sequence on each of the 2 domes and box in front of her. Under the right dome is a monkey's head whose mouth opens as he turns, and under the other dome is a clown's head that sticks out his tongue as he turns. As the lady taps the center box it discloses a small French child doll who blows kisses to the viewer. (Marvin Co. Auctions)



**\$17,600 SET OF TOY SOLDIERS:** A treat for any child, this set of 251 lead miniatures is the most expensive gift of its kind. The trooper (above) is one of a British Camel Corps of soldiers in the full set (right). This was sold at Phillips Auctioneers, London, in Jan 1987.



(\$1,316,872) for the Duke of Windsor's Royal Navy Officer's sword (presented to him by King George V in 1913) at Sotheby's, Geneva, Apr 2-3, 1987.

**TABLE.** A Philadelphia tea table was auctioned at Christie's, NYC, on Jan 25, 1986 for \$1,045,000, the highest price ever paid for a piece of American furniture.

**TAPESTRY.** The highest price paid for a tapestry is £550,000 (\$1,155,000) for a Swiss medieval tapestry frieze in two parts dated 1468-76 at Sotheby's, Geneva, Switzerland, Apr 10, 1981, by the Basle Historische Museum.

**TEDDY BEAR.** The highest price paid at auction was \$9,152 (£5,720) for a German-made yellow short plush Steiff teddy bear c. 1904, named Archibald. It is 27 in high and was sold on Feb 10, 1987 at Sotheby's London.

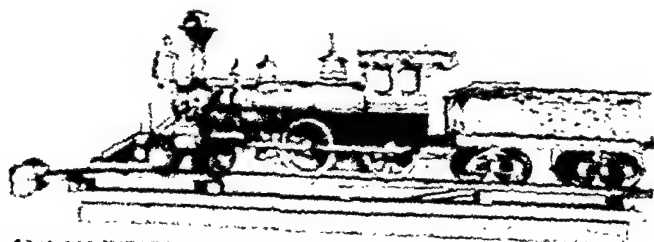
**TOY SOLDIERS.** 251 pieces were sold for £11,000 (\$17,600) at Phillips auctioneers, London, on Jan 14, 1987.

**TYPEWRITER.** The highest price paid for an antique machine is £3,000 (\$6,450) for an 1886 Daw and Tait machine auctioned at Sotheby's, London on Dec 12, 1980.

**VIOLIN.** The highest price ever paid at auction for a violin or any musical instrument is \$726,000 for a 1716 Stradivarius, "The Colossus," at Christie's, London on Apr 29, 1987. Buyer was the noted Italian violinist Alberto Bianchi.

**WALKING STICK.** The highest auction price for a walking stick has been \$24,200 at Sotheby Parke Bernet, NYC in 1983 for an octagonal whale ivory nobbed stick decorated by scrimshanders in 1845.

**WEATHERVANE.** The highest price paid at auction for a weathervane is \$203,500 for a rare locomotive and tender copper weathervane, American, c. 1882, at Robert W. Skinner Galleries, Bolton, Mass, Mar 21, 1987. The locomotive, reproduced in fine detail, is mounted on a track with two ball finials at track's end, and attached ball counterweight. The weathervane's overall dimensions are: 17 in high, 61 in long and 8 in deep. This weathervane, installed in 1882 on the Dept Building of the Providence and Worcester Railway in Woonsocket, Rhode Island, was a town landmark until it was removed in the late 1960s, when the building was sold.



**\$203,500 WEATHERVANE:** This locomotive-and-tender copper sculpture comes from an 1882 railway building in Woonsocket, RI. It was sold at the Skinner Galleries in Bolton, Mass in Mar 1987 for this record price.



Eric deWilde, a Hollywood, Fla schoolboy, found a bag of diamonds on a railroad track in Mar 1983, partly crushed by train wheels. At Christie's, NYC, on June 20-21, 1984, the found jewels were auctioned off for \$350,000. The highest single item was a man's 5.9 carat diamond ring that brought \$27,000. deWilde received all the proceeds from his discovery which came about when he was searching with a flashlight for his missing bicycle.

### 3. AGRICULTURE

#### Origins

It has been estimated that only 21% of the world's land surface is cultivable and that only 7.6% is actually under cultivation. Evidence adduced in 1971 from Nok Nok Tha and Spirit Cave, Thailand tends to confirm plant cultivation and animal domestication were part of the culture c. 11,000 bc. Goats were herded on Mt Carmel, Palestine (now Israel) as early as 16,000 bc, and were domesticated at Asiab, Iran by c. 8050 bc. Dogs were domesticated at Star Carr, Yorkshire, Eng by c. 7700 bc. The earliest definite date for sheep is c. 7200 bc at Argissa-Magula, Thessaly, Greece, and for pig and cattle c. 7000 bc at the same site. The earliest date certain for horse is c. 4350 bc from Dereivka, Ukraine, USSR.

#### Farms

The largest farms are collective farms in the USSR. These have been reduced in number from 235,500 in 1940 to only 18,000 in 1980, and have been increased in size so that units of over 60,000 acres are not uncommon.

The pioneer farm of Laucidio Coelho near Campo Grande, Mato Grosso, Brazil, c. 1901 was 3,358 sq mi (2,150,000 acres) with 250,000 head of cattle at the time of his death in 1975.

#### Largest Chicken Ranch

The largest chicken ranch is the Croton Egg Farm, Croton, Ohio, which has 4.8 million hens laying some 3.7 million eggs daily.

#### Largest Turkey Farm

The largest turkey farm is that of Bernard Matthews Ltd, centered at Great Wingham, Norfolk, England, with 2,500 workers tending 900,000 turkeys.

#### Largest Cattle Station

The largest cattle station is the Anna Creek station of 11,626.8 sq mi, S Australia, owned by the Kidman family. (It is thus 23% the size

of Eng.) The biggest component is Strangway at 5,449 sq mi. Until 1915 the Victoria River Downs Station, Northern Territory, was over three times larger, with an area of 22,400,000 acres (35,000 sq mi).

## Largest Sheep Station

The largest sheep station in area is Commonwealth Hill, in the northwest of South Australia. It grazes between 60,000 and 70,000 sheep, about 700 cattle and 54,000 *uninvited* kangaroos, in an area of 4,080 sq mi.

The head count on Sir William Stevenson's 30,000-acre Lochinver Station in New Zealand was 117,500 on Jan 1, 1983 on 21,000 acres.

The largest sheep move on record occurred when 27 horsemen moved a mob of 43,000 sheep 40 miles from Barcaldine to Beaconsfield Station, Queensland, Australia, in 1886.

## Largest Community Garden

The largest community garden project is that operated by the Senior Citizen's Gardening and Greenhouse Assoc in Wayne County, Mich, where 250 senior citizens in 1987 gardened 425 parcels of land 50 × 50 ft square (1,062,500 sq ft) plus 9,000 sq ft of greenhouse.

## Largest Piggery

The largest piggery is at the Sljeme pig unit in Yugoslavia, which is able to process 300,000 pigs in a year. Even bigger units may exist in Rumania, but details are lacking.

## Mushroom Farm

The largest mushroom farm is Moonlight Mushrooms, Inc, founded in 1937 in a disused limestone mine near West Winfield, Pa. It has over 900 employees working underground, in a maze of galleries 110 miles long, producing 23,000 tons of mushrooms per year.

## Multiple Births (Livestock)

A cow named "Lyubik" gave birth to 7 calves at Mogilev, USSR, it was reported on Apr 25, 1964. Five live and one dead calf were recorded from a Friesian at Te Puke, New Zealand, July 27, 1980, but none survived. A case of 5 live calves at one birth was reported in 1928 by T. G. Yarwood of Manchester, England. The lifetime prolificacy record is 39 by "Big Bertha," owned by Jerome O'Leary of Blackwaterbridge, Co Kerry, Ireland. A Danish black and white bull named "Soender Jylland's Jens" left 220,000 surviving progeny by artificial insemination when put to sleep aged 11 in Copenhagen in Sept 1978.

The highest recorded number of piglets in one litter is 36 of which only one was lost at the age of one month and 35 survived to adulthood. A 3-year-old sow named "Old Faithful" on the farm of Lloyd Hofmeyer, south of Sanborn, Iowa, farrowed the litter Apr 17-20, 1965. It was her 4th litter, and she weighed 1,000 lb just before giving birth.

A case of 8 lambs at a birth was reported by D. T. Jones of Priory Farm, Gwent, Wales, in June 1956, and by Ken Towse of Buckton, Eng, in Mar 1981 but none lived. A case of a sheep living to 26 years

was recorded in flock book records by H. Poole, Wexford, Ireland. Many cases of sextuplet lambs have been reported.

## Egg-Laying

The highest authenticated rate of egg-laying is by a white leghorn chicken hen, # 2988 at the College of Agriculture, Univ of Missouri, with 371 eggs in 364 days in an official test, conducted by Prof Harold V. Biellier, ending on Aug 29, 1979.

The heaviest egg *reported* is one of 16 oz with double yolk and double shell, laid by a white leghorn at Vineland, NJ, Feb 25, 1956. The largest *recorded* was one of "nearly 12 oz" for a 5-yolked egg 12¼ in around the long axis and 9 in around the shorter axis laid by a Black Minorca at Mr Stafford's Damsteads Farm, Mellor, Lancashire, England in 1896.

The highest claim for the number of yolks in a chicken's egg is 9 reported by Mrs Diane Hainsworth of Hainsworth Poultry Farms, Mt Morris, NY, in July 1971 and also from a hen in Kirghizia, USSR in Aug 1977.

The white goose "Speckle" owned by Donny Brandenburg of Goshen, Ohio, on May 3, 1977 laid a 24-oz egg measuring 13½ × 9½ in in circumferences.

An Aylesbury duck laid 457 eggs in 463 days including an unbroken one of 375 in 375 days before dying on Feb 7, 1986. The duck belonged to Annette and Angela Butler of Princes Risborough, Bucks, Eng.

## Crop Yields

A yield of 370 bushels of corn from an acre, was achieved by Herman Warsaw of Saybrook, Ill (McLean County) in 1985, according to the Farm Journal.

The highest recorded yield for sugar beet is 62.4 tons per acre by Andy Christensen and Jon Giannini in the Salinas Valley, California.

The greatest number of US barrels of potatoes picked in a 9½ hr day is 235 by Walter Sirois (b 1917) of Caribou, Maine, on Sept 30, 1950.

## Milk Yields

The highest recorded world lifetime yield of cows' milk is 465,224 lb by the cow named #289, a Holstein Friesian (b Sept 6, 1964) (d May 1, 1984), owned by Manuel Maciel & Son, Hanford, Calif.

The greatest recorded yield for one lactation (365 days) is 55,661 lb by the Holstein "Beecher Arlinda Ellen" owned by Mr and Mrs Harold L. Beecher of Rochester, Ind in 1975. The highest reported milk yield in a day is 241 lb by "Urbe Blanca" in Cuba on or about in 23, 1982.

The record for hand milking was set by Andy Faust at Collinsville, Okla, in 1937 when he achieved 120 gallons in 12 hr.

The highest recorded milk yield for any goat is 7,714 lb in 365 days by "Osory Snow-Goose" owned by Mr and Mrs G. Jameson of Leppington, NSW, Australia in 1977. A 15-year-old goat owned by Mrs Nanbui Meghani of Bhuj, Gujarat, India, was reported in Nov 1984 to have lactated continuously for 12 years.

## Butter Fat Yield

The world record lifetime yield is 16,370 lb by the US Holstein "Breezewood Patsy Bar Pontiac" in 3,979 days. Her lactation record for 365 days of 2,230 lb was reported on Oct 8, 1976.

## Cheese

The most active cheese-eaters are the people of France, with an annual average in 1983 of 43.6 lb per person. The biggest producer is the US with a factory production of 4,773,500,000 lb in 1980.

The largest cheese ever made was a cheddar of 34,591 lb, made in 43 hours, Jan 20-22, 1964, for the Wisconsin Cheese Foundation by Steve Siudzinski of Langes Corners, Wis, for exhibition at the NY World's Fair. It was transported in a specially designed 45-ft-long refrigerated tractor trailer "Cheese-Mobile."

## Heaviest Cattle, Pigs and Sheep

Of heavyweight cattle the heaviest on record was a Holstein-Durham cross named "Mount Katahdin" exhibited by A. S. Rand of Maine, 1906-10 and frequently weighed at an even 5,000 lb. He was 6 ft 2 in at the shoulder with a 13 ft girth and died in a barn fire c. 1923.

The highest recorded birthweight for a calf is 225 lb from a British Friesian cow at Rockhouse Farm, Swansea, Wales, in 1961. A calf of 270 lb was born dead from a Holstein who gave birth by Caesarean section on May 28, 1986 at Simitar Farms, Henryetta, Okla, belonging to Mrs. Sherlene O'Brien.

The heaviest hog recorded was the Poland-China hog "Big Bill" of 2,552 lb measuring 9 ft long with a belly on the ground, owned by Burford Butler of Jackson, Tenn, and chloroformed in 1933. Raised by W. J. Chappall, he was mounted and displayed in Weakely County, Tenn until 1946.

The highest recorded birthweight for a lamb is 38 lb at Clearwater, Sedgwick County, Kansas, in 1975, but neither this lamb nor the ewe survived. A lamb of the same weight was born on Apr 7, 1975 in Howard, SD, but died soon after.

## Sheep Shearing

The highest recorded speed for sheep shearing in a working day was that of John Fagan, who machine-sheared 804 lambs (average 89.3 per hour) in 9 hours at Hantoru Rd, Pio Pio, New Zealand, on Dec 8, 1980. The hand-shearing (solo blade) record for a 9-hour day is 353 lambs by Peter Casserly of Christchurch, New Zealand, Feb 13, 1976.

In a shearing marathon, 4 men machine-sheared 2,519 sheep in 24 hours at Stewarts Trust, Waikia, Southland, New Zealand, on Feb 11, 1982.

Mr Laver Taylor (b Feb 27, 1896) of Ephraim, Utah claims to have sheared 515,000 sheep to May 1984.

## Chicken Plucking

The record time for plucking chickens clean was set in the 1976 championship contest at Masaryktown, Fla, Oct 9, when a team of 4

women (Doreena Cary, Diane Grieb, Kathy Roads and Dorothy McCarthy) plucked 12 birds naked in 32.9 sec.

Ernest Hausen (1877-1955) of Fort Atkinson, Wisc, died undefeated after 33 years as a champion. On Jan 19, 1939 he was timed for one chicken at 4.4 sec, and reportedly twice did 3.5 sec a few years later.

Leaving a single feather produces the cry "Fowl!"

## Turkey Plucking

Vincent Pilkington of Coochill, County Cavan, Ireland, killed and plucked 100 turkeys in 7 hours 32 min on Dec 15, 1978. His record for a single turkey is 1 min 30 sec on RTE Television in Dublin on Nov 17, 1980.

Joe Glaub (US) killed 7,300 turkeys in a "working" day on May 23, 1983. Mrs Madge Colenso gutted 94 turkeys in 60 min at Rivington Farm, Burstow, Surrey, Eng, on Dec 20, 1984.

## Largest Hop Field

The largest hop field is one of 1,836 acres near Toppenish, Wash, owned by John I. Haas, Inc, the world's largest hop growers, with hop farms in Calif, Ida, Ore and Wash with a total area of 3,560 acres.

## Largest Vineyard

The largest vineyard extends over the Mediterranean façade between



### TURKEY-GUTTING CHAMP:

Mrs Madge Colenso of Surrey, Eng, shows the way she handled the cleaver in gutting a record 94 turkeys in an hour. (*Farmers Weekly*)

**WILD BOAR RACE:** "Kloten-Joe II," the winner of the 100-meter pig sprint set a record of 11 sec in Hamburg, W Germany, Apr 29, 1984. His trainer, Willi Seiker is encouraging him to stay in the lane, as 4,000 spectators also cheer the animals on.



the Rhone and the Pyrenees in the départements (provinces) of Aude, Hérault, Gard and Pyrénées-Orientales. It has an area of 2,075,685 acres of which 52.3% is *monoculture viticole*.

### Largest Rice Farm

The largest contiguous wild rice (*Zizania aquatica*) farm is Clearwater Rice Inc at Clearbrook, Minn with 2,000 acres. In 1986 it yielded 577,000 lb

### Largest Wheat Field

The largest single fenced field sown with wheat was one of 35,000 acres, sown in 1951 near Lethbridge, Alberta, Canada.

## LIVESTOCK SALES RECORDS

*Note: Some exceptionally high livestock auction sales are believed to result from collusion. Others are marketing and publicity exercises with little relation to true market prices.*

### Bull

The highest price ever paid for a bull is \$2,500,000 for the beefalo (a  $\frac{1}{2}$  bison,  $\frac{1}{4}$  charolais,  $\frac{1}{4}$  Hereford) "Joe's Pride" sold by D. C. Basolo of Burlingame, Calif to the Beefalo Cattle Co of Canada, of Calgary, Alberta, on Sept 9, 1974

### Cow

The highest price ever paid for a cow is \$1.3 million for the Holstein "Mist," purchased by a syndicate at an auction in E Montpelier, Vt, on July 13, 1985. She has had 14 pregnancies.

### Sheep

The highest price ever paid for a ram is SA79,000 (about \$73,500) by the Gnowangerup Animal Breeding Centre, Western Australia for a Merino ram from the Colinsvale Stud, Mount Bryan, South Australia, at the Royal Adelaide Show on Sept 10, 1981.

The highest price ever paid for wool is SA280 per kg (\$92 per lb) preavy for a bale of Tasmania superfine wool from the Launceston, Tasmania sales on Dec 11, 1986 by Fuji Keori Ltd of Osaka, Japan. This firm has been top bidder each year from 1973 to 1986 inclusive.

### Pig

The highest price ever paid for a pig is \$56,000 for a cross-breed barrow named "Bud," owned by Jeffrey Roemisch of Hermleugh, Tex, and bought by E. A. "Bud" Olson and Phil Bonzio on Mar 5 1985.

### Horse

The highest price for a draught horse is \$47,500 paid for the 7-year-old Belgian stallion "Farecur" by E. G. Good at Cedar Falls, Iowa Oct 16, 1917.

# The Human World

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## 1. POLITICAL AND SOCIAL

The land area of the earth is estimated at about 57,267,400 sq mi (including inland waters), or 29.08% of the world's surface area.

### Largest Political Division

The British Commonwealth of Nations, a free association of 49 sovereign independent states and 27 non-sovereign states and dependencies, covers an area of 13,095,000 sq mi with a population which in 1980 surpassed 1,000 million.

## COUNTRIES

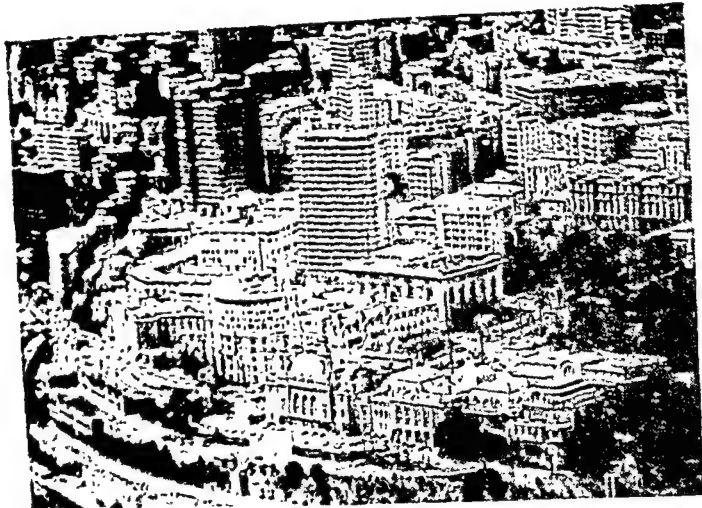
The world comprises 170 sovereign countries and 59 separately administered non-sovereign territories, making 229. The United Nations still list the *de jure* territories of East Timor (now incorporated into Indonesia), Western Sahara (now in Morocco) and the uninhabited Canton and Enderbury Islands (now disputed between the US and Kiribati) but do not list the three Baltic States of Estonia, Latvia and Lithuania though their forcible incorporation into the USSR in 1940 has never been internationally recognized. Neither do they list the *de facto* territories of Taiwan, Mayotte or Spanish North Africa, the 4 Antarctic Territories or the Australian Territory of Coral Sea Islands and Heard and McDonald Islands.

### Largest Country

The country with the greatest area is the Union of Soviet Socialist Republics (the Soviet Union), comprising 15 Union (constituent) Republics with a total area of 8,648,500 sq mi, or 15% of the world's total land area, and a total coastline (including islands) of 66,090 miles. The country measures 5,580 miles from east to west and 2,790 miles from north to south. Its population on Jan 1, 1987 was 281,700,000.

### Smallest Country

The smallest independent country is the State of the Vatican City.



**SMALLEST MARITIME SOVEREIGN NATION** is Monaco, to the south of France, crowded with buildings, piers and 38,179 people per sq mi but with only  $3\frac{1}{2}$  mi of shoreline.

which was made an enclave within the city of Rome, Feb 11, 1929. The enclave has an area of 108.7 acres (0.17 sq mi).

The maritime sovereign country with the shortest coastline is Monaco with 3.49 miles excluding piers and breakwaters.

The world's smallest republic is Nauru, less than 1 degree south of the equator in the Western Pacific. It became independent on Jan 31, 1968, has an area of 5,263 acres (8.2 sq mi) and a population of 8,100 (latest estimate, mid-1986).

The smallest colony in the world is Gibraltar (since 1969; the City of Gibraltar), with an area of  $2\frac{1}{2}$  sq mi. However, Pitcairn Island, the only inhabited (55 people at Dec 31, 1986) island of a group of 4 (total area  $18\frac{1}{2}$  sq mi), has an area of  $1\frac{1}{2}$  sq mi, or 960 acres.

The official residence, since 1834, of the Grand Master of the Order of the Knights of Malta, totaling 3 acres and comprising the Villa del Priorato di Malta on the lowest of Rome's seven hills (the 151-ft Aventine) retains certain diplomatic privileges as does 68 Via Condotti. The order has accredited representatives to foreign governments. Hence, it is sometimes cited as the smallest "state" in the world.

## Flattest and Most Elevated Countries

The country with the lowest highest point is the Republic of the Maldives, which attains 8 ft above sea level. The country with the highest lowest point is Lesotho. The egress of the Senqu (Orange) riverbed is 4,530 ft above sea level.

## Frontiers

The country with the most land frontiers is China, with 13—Mongolia, USSR, N Korea, Hong Kong, Macau, Vietnam, Laos,



Burma, India, Bhutan, Nepal, Pakistan, and Afghanistan. These extend for 14,900 mi. France, if all her *Départements d'outre-mer* are included, may, if her territorial waters are extended, have 20 frontiers.

The longest *continuous* frontier is between Canada and the US which (including the Great Lakes boundaries) extends for 3,987 miles (excluding 1,538 miles with Alaska).

The frontier which is crossed most frequently is that between the US and Mexico. It extends for 1,933 miles and has more than 120 million crossings every year. The Sino-Soviet frontier, broken by the Sino-Mongolian border, extends for 4,500 miles with no reported figures of crossings.

The "frontier" of the Holy See (Vatican City) in Rome measures 2.53 miles. The land frontier between Gibraltar and Spain at La Linea closed in June 1969 and reopened at midnight, Feb 4-5, 1985 measures 1,672 yd. Zambia, Zimbabwe, Botswana and Namibia (South West Africa) almost merge.

### Most Impenetrable Boundary

The 858-mile-long "Iron Curtain," dividing the Federal Republic (West) and the Democratic Republic (East) parts of Germany utilizes 2,230,000 land mines and 50,000 miles of barbed wire, in addition to many watchtowers containing detection devices. The whole 270-yd-wide strip occupies 133 sq mi of E German territory and costs an estimated \$7 billion to build and maintain. It reduced the westward flow from more than 200,000 in 1961 to a trickle of 30 (including 8 guards in 1985). The death toll has been 184 since 1962. Construction of the second wall began in E Berlin in Mar 1984.

### Most Populous Country

The largest population of any country is that of China, which in *pinyin* is written Zhongguo (central land). The census of July 1982 was 1,008,175,288 (excluding Taiwan, Hong Kong and Macau), while the 1984 population stood at 1,036,004,000. The rate of natural increase in the People's Republic of China is now estimated to be 38,700 a day or 14.1 million per year. The mid-year 1987 estimate is 1,053.7 million. The census required 5,100,000 enumerators to work for 10 days. India is set to overtake China during the next century.

### Least Populous State

The independent state with the smallest population is the Vatican City or the Holy See (see *Smallest Country*), with 750 inhabitants in mid-1986, and a zero birth rate.

### Most Sparsely Populated Territory

Antarctica became permanently occupied by relays of scientists as of Oct 1956. The population varies seasonally and reaches 2,000 at times.

The least populated territory, apart from Antarctica, is Kalaallit Nunaat (formerly Greenland), with a population of 53,406 (1986) in an area of 840,000 sq mi, giving a density of one person to every 15.12 sq mi. Some 84.3% of the island comprises an ice cap.



district of Mong Kok on the Kowloon Peninsula had a density of 652,910 people per sq mi. In 1959, at the peak of the housing crisis in Hong Kong, it was reported that in one house designed for 12 people the number of occupants was 459, including 104 in one room and 4 living on the roof.

## Populations

The daily increase in the world's population is 237,400, or 158 per minute. For past, present and future estimates, see table.

## CITIES

### Most Populous City

The most populous "urban agglomeration" in the world is the Tokyo-Yokohama Metropolitan Area, of 1,081 sq mi, containing an estimated 29,002,000 people in 1981. The municipal population of Tokyo in 1985 was 11,903,900. The population of the metropolitan area of Greater Mexico City in 1985 was published as 17,321,800 with the city proper at 10,499,000 (1984 est).

### Oldest City

The oldest known walled town is Jericho (Ariha), about 5 miles th of the Dead Sea. Radio-carbon dating on specimens from the est levels reached by archeologists indicate habitation there by haps 3,000 people as early as 7800 bc. The settlement of Dolní stonice, Czechoslovakia has been dated to the Gravettian culture c. 000 bc. The oldest capital city in the world is Dimashq (Damas- s), capital of Syria. It has been continuously inhabited since c. 10 bc.

### Locations of Cities, Capitals and Dwellings

The highest capital city, before the domination of Tibet by China, s Lhasa, at an elevation of 12,087 ft above sea level.

La Paz, the administrative and *de facto* capital of Bolivia, stands at altitude of 11,916 ft above sea level. Its El Alto airport is at 13,385 ft. The city was founded in 1548 by Capt Alonso de Mendoza on the site of an Indian village named Chuquiapu. It was originally called Ciudad de Nuestra Señora de La Paz (City of Our Lady of Peace), but in 1825 was renamed La Paz de Ayacucho, its present official name. Here, the legal capital of Bolivia, stands at 9,301 ft above sea level. The new town of Wenchuan, founded in 1955 on the Chinghai-Tibet border, north of the Tangla Range, is the highest at 16,732 ft above sea level.

The settlement of Ein Bokek, which has a synagogue on the shores of the Dead Sea, is the lowest town in the world at 1,299 ft below sea level.

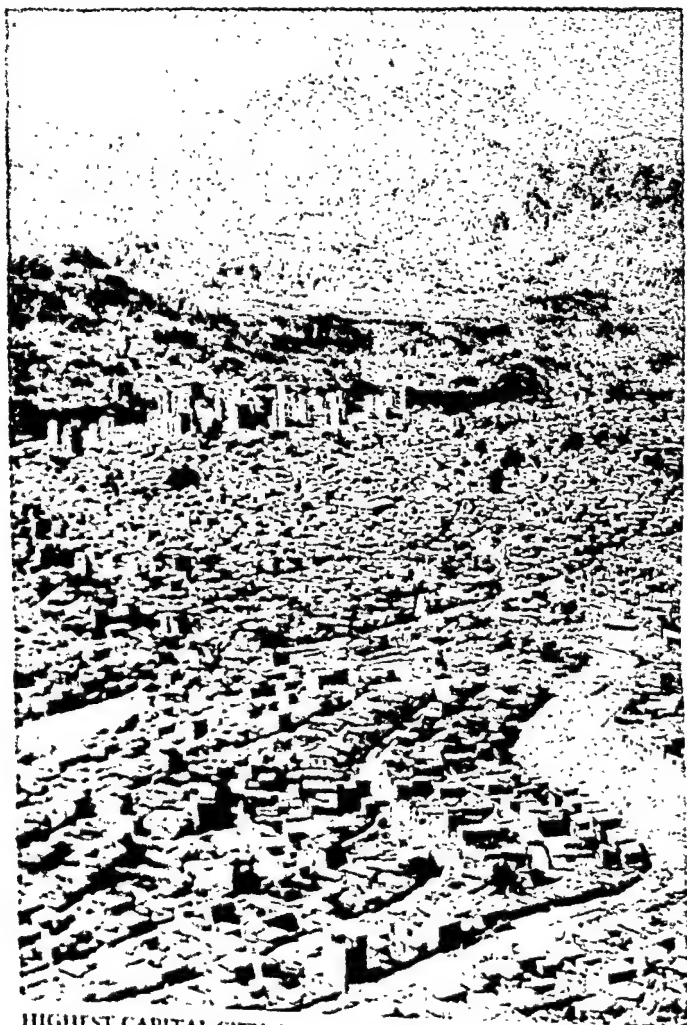
The northernmost capital is Reykjavik, Iceland, at 64° 08' N. Its population was estimated to be 80,000 (1985).

### Largest Town in Area

The largest town in area is Mount Isa, Queensland, Australia. The town administered by the City Council is 15,822 sq mi.

## Most Remote Town from Sea

The town most remote from the sea is Urumqi (formerly Tihwa, Sinkiang), capital of the Uighur Autonomous Region of China, at a distance of about 1,400 miles from the nearest coastline. Its population was estimated to be 320,000 in 1974.



**HIGHEST CAPITAL CITY:** La Paz, the administrative capital of Bolivia, is 11,916 ft up in the Andes, and its airport is 1,469 ft still higher up. The highest lake in the world, Titicaca, is only 30 mi away. (Jerry Merrick)

## Emigration

More people emigrate from Mexico than from any other country. An estimated 800,000 emigrated illegally into the US in 1976 alone. The Soviet invasion of Afghanistan in Dec 1979 caused an influx of 2,725,000 refugees mainly into Pakistan. A total of 108,000 emigrated from the UK in 1985. Her largest number of emigrants in any one year was 360,000 in 1852, mainly from Ireland.

## Immigration

The country which regularly receives the most legal immigrants is the US. It has been estimated that in the period 1820–1985, the US received 52,520,358 *official* immigrants. One immigrant in every 20 in the US is, however, an *illegal* immigrant. In 1986, US patrols on the Mexican border arrested 629,000 aliens.

## Birth Rate

The highest estimated by the UN is 55.1 per 1,000 for Kenya in 1980–85. The rate for the whole world was 29.0 per 1,000 in 1984. A worldwide survey published in July 1985 showed no country with a rising birth rate, the last being Nepal in 1981. Excluding Vatican City where the rate is negligible, the lowest recorded rate is 9.3 per 1,000 (1985) for San Marino.

## Death Rate

The rate for the whole world was 11.0 per 1,000 in 1984. The highest of the latest available recorded death rates is 40 deaths per 1,000 of the population in Kampuchea (Cambodia) (1975–80). The lowest of the latest available recorded rates is 3 deaths per 1,000 in Tonga in 1853.

## Natural Increase

The rate of natural increase for the whole world is estimated to be  $29.0 - 11.0 = 18.0$  per 1,000 in 1984, compared with a peak 22 per 1,000 in 1965. The highest of the latest available recorded rates is  $55.1 - 14.0 = 41.1$  in Kenya in 1980–85.

The lowest rate of natural increase in any major independent country is W Germany with a negative figure of  $-1.9$  per 1,000 for 1985 (9.1 births and 11.5 deaths).

## Sex Ratio

There were estimated to be 1,006.7 men in the world for every 1,000 women (1981). The country with the largest recorded shortage of males is the USSR, with 1,132 1 females to every 1,000 male (1985 census). The country with the largest recorded woman shortage is Pakistan, with 906 to every 1,000 males in 1981. The figures are however, probably under-enumerated due to *purdah*, a policy that keeps women from appearing in public.

## Marriage Ages

The country with the lowest average age for marriage is India, with 20.0 years for males and 14.5 for females. At the other extreme is

Ireland, with 26.8 for males and 24.7 for females. In the People's Republic of China, the recommended age for marriage for men has been 28 and for women 25.

## Divorces

The country with the most divorces is the US with a total of 1,187,000 in 1985—a rate of 48.94% of the then current annual total of marriages. The all-time high was reached in 1981—1,213,000 or 49.75%.

## Infant Mortality

Based on deaths before one year of age, the lowest of the latest available recorded rates is 5.0 deaths per 1,000 live births in Tonga in 1985. The world rate in 1978 was 91 per 1,000 live births.

The highest infant mortality rate recently estimated is c. 200 per 1,000 for Djibouti.

In Ethiopia the infant mortality rate was unofficially estimated to be nearly 550 per 1,000 live births in 1969.

## Life Expectation

World expectation of life is rising from 47.4 years (1950–55) to 64.5 years (1995–2000). There is evidence that life expectation in Britain in the 5th century AD was 33 years for males and 27 years for females. In the decade 1890–1900 the expectation of life among the population of India was 23.7 years.

Based on the latest available data, the highest recorded expectation of life at age 12 months is 74.54 years for males in Japan and 80.18 years for females (1985).

The lowest recorded expectation of life at birth is 36.6 for males and 37.3 for females in Afghanistan.

# STANDARDS OF LIVING

## Housing

For comparison, a dwelling unit is defined as a structurally separated room or rooms occupied by private households of one or more persons and having separate access or a common passageway to the street. The country with the greatest recorded number of completed dwelling units was India, which had 190,251,000 in 1977 and 142,954,921 in 1981.

## Hospitals

The largest hospital is the Pilgrim State Hospital, a mental hospital at West Brentwood, LI, NY, with 3,614 beds. It formerly contained 14,200 beds.

The busiest maternity hospital in the world has been the Yemo Hospital in Kinshasa, Zaire, with 41,336 deliveries in 1977. The record "birthquake" occurred on one day in May 1976 and 599 babies born. It had 599 beds.

The largest psychiatric institute is at UCLA.

The longest stay in a hospital occurred when Martin Luther King was admitted to the Columbus State Institute for the Deaf, 1964.

Ohio in 1875, and stayed until she died in Jan 1975, aged 103 years 6 months, in the Orient State Institution, Ohio, spending more than 99 years in institutions.

## Physicians

The country with the most physicians is the USSR, with 831,300, or one to every 307 persons. China had an estimated 1.4 million paramedical personnel known as "barefoot doctors" by 1981.

Nine children (4 sons and 5 daughters) of Dr Antonio B Vicencio of Los Angeles qualified as physicians, 1964-82. Henry Lewis Lutterloh and Elizabeth Grantham of Chatham County, NC, were the grandparents of 19 medical doctors. From 1850 to 1962 they practiced a total of 704 man-years.

## Psychiatrists and Psychologists

The country with the most psychiatrists is the US. The registered membership of the American Psychiatric Association (inst. 1894) was 32,000 in 1985. The membership of the American Psychological Association (inst. 1892) was 60,000 in 1986.

## Dentists

The country with the most dentists is the US, where 140,000 were registered members of the American Dental Association in 1986.

# GOVERNMENT

## Oldest Ruling House

The Emperor of Japan, Hirohito (b Apr 29, 1901), is the 124th in line from the first Emperor, Jimmu Tenno or Zinmu, whose reign was traditionally from 660 to 581 bc, but probably from c. 40 to c. 10 bc. He has been Emperor since Dec 25, 1926, and is currently the world's longest reigning monarch.

## Longest Reigns

The longest recorded reign of any monarch is that of Pepi (Phiopt) II, a Sixth Dynasty Pharaoh of ancient Egypt. His reign began in c. 2281 bc when he was aged 6, and is believed to have lasted c. 94 years.

Minhti, king of Arakan (Burma) is reputed to have reigned for 95 years between 1279 and 1374.

Musoma Kaniyo, chief of the Nzega district of western Tanganyika (now part of Tanzania), reputedly reigned for more than 98 years from 1864, when aged 8, until his death on Feb 2, 1963.

The longest reign of any European monarch was that of Afonso I Henriques of Portugal. He ascended the throne first as a count and then as king on Apr 30, 1112 and died on Dec 6, 1185 after a reign of 73 years 220 days.

## Shortest Reign

The Crown Prince Luis Filipe of Portugal was mortally wounded at the time that his father was killed by a bullet, which severed his carotid

artery, in the streets of Lisbon on Feb 1, 1908. He was thus technically King of Portugal (Dom Luis III) for about 20 minutes.

## Youngest King and Queen

Forty-six of the world's 170 sovereign states are not republics. They are led by 1 Emperor, 14 Kings, 3 Queens (one, Elizabeth II as head of 16 other Commonwealth countries), 4 princely rulers, 1 Sultan, 3 Emirs, a Pope, a Sheikh, a Ruler and one elected monarch.

The youngest king is King Mswati III of Swaziland, who was crowned on Apr 25, 1986, age 18. He was the 67th son of King Subhusa II. The youngest queen is Margrethe II of Denmark (b Apr 16, 1940).

## British Royalty

The longest reign was that of Queen Victoria (reigned 1837-1901), 63 years 216 days. She lived 81 years 243 days. King George III (reigned 1760-1820) was the longest reigning king, 59 years 96 days.

The shortest reign was 13 days, July 6-19, 1553, by Jane (Lady Jane Grey) who was beheaded soon after at the age of 17. She is known as the "9-day Queen" because she delayed her acceptance of the allegiance of the Lords of the Council until July 9 and wasn't actually proclaimed queen until July 10, 1553.

The king with the most legitimate children was Edward I (reigned 1272-1307), known as Longshanks, who had 18. King Henry I (b 1068-d 1135), in addition to having 1 (possibly 2) legitimate son(s) and a daughter, had at least 20 bastard children (9 sons, 11 daughters) and possibly 22 by 6 mistresses. Queen Anne (b 1665-d 1714) had 17 pregnancies, but produced only 5 live births.

The most married ruler was Henry VIII (reigned 1509-47) who married 6 times.

For the period Oct 30, 1683 to Feb 6, 1685, there were 7 English monarchs living simultaneously. George II had just been born, Charles II was still alive, as were James II, William and Mary, Anne, George I, and also Richard Cromwell, who had been Head of State 1658-59, and who lived under the alias John Clarke until 1712.

## Highest-Paid Legislators

The most highly paid of all the world's legislators are members of the US Congress, who from Jan 1, 1986 receive \$75,000 in salary, plus honoraria of \$20,940. In addition, up to \$1,021,167 per year is allowed for office help, with a salary limit of \$50,000 for any one staff member per year (limited to 16). Besides, Senators are authorized up to \$143,000 per year, depending on the state, for an Official Office Expense Account from which are paid official travel expenses, telegrams, long-distance telephone calls, air-mail postage, stationery, subscriptions to newspapers, and office expenses in the home state. When abroad they have access to "counterpart funds." They also are entitled to very low charges for filming, speech and radio transcriptions, and beauty treatments (females only).

The President of the US has a salary of \$200,000 taxable plus \$170,000 non-taxable for travel or entertainment and a lifetime pension of \$69,630 per annum.



## **Largest Legislature**

The largest legislative assembly is the National People's Congress of the People's Republic of China. The Congress which convened in June 1983 had 2,978 members.

## **Longest UN Speech**

The longest speech made in the UN was one of 4 hours 29 min by the president of Cuba, Fidel Castro Ruz (b Aug 13, 1927) on Sept 26, 1960.

## **Filibusters**

The longest continuous speech in the history of the US Senate was that of Senator Wayne Morse of Oregon, Apr 24-25, 1953, when he spoke on the Tidelands Oil Bill for 22 hours 26 min without resuming his seat. Senator Strom Thurmond, Democrat (SC), spoke against the Civil Rights Bill for 24 hours 19 min, Aug 28-29, 1957, interrupted only briefly by the swearing-in of a new Senator.

The record for a filibuster in any US legislature is 43 hours by Texas State Senator Bill Meier from Euless, who spoke against nondisclosure of industrial accidents in May 1977.

## **Oldest Treaty**

The Anglo-Portuguese Treaty of Alliance was signed in London 614 years ago on June 16, 1373. The text was confirmed "with my usual flourish" by John de Banketre, Clerk.

## **Constitutions**

The world's oldest constitution is that of the US ratified by the Ninth State (New Hampshire) on June 21, 1788 and entered into effect on Mar 4, 1789. The only countries without written constitutions are Israel, Libya, New Zealand, Oman, and the United Kingdom.

## **First Female Elected Head of State**

President Vigdis Finnbogadóttir (b 1930) of Iceland became the first democratically elected female head of state on June 30, 1980 and took office on Aug 1, 1980.

## **First State to Allow Female Vote**

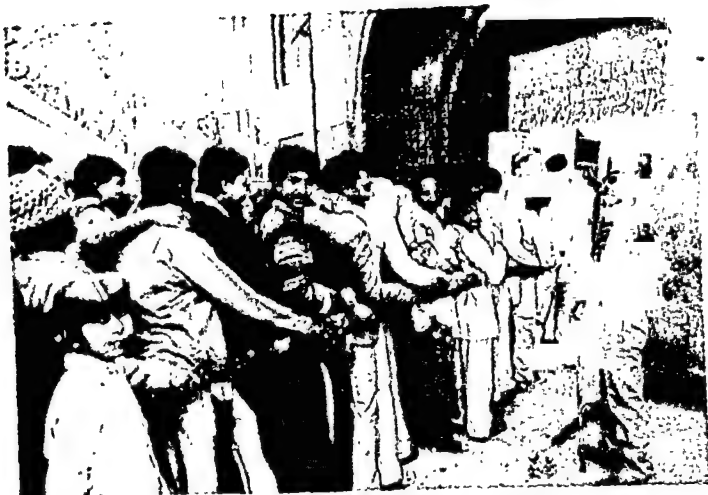
Wyoming, while still a Territory in 1869, allowed women suffrage.

## **Longest Term of Office**

The longest serving current prime minister is Lee Kuan Yew (b Sept 16, 1923) of Singapore who started his 28th year in office on June 5, 1986.

Andrei Andreievich Gromyko (b July 6, 1909) Minister of Foreign Affairs of the USSR from Feb 15, 1957, had been Deputy Foreign Minister from 1946, when he was elected President of the USSR on July 1, 1985.

As minister for non-ferrous metallurgy in the USSR, Pyotr Lomako (b 1904) served for 46 years from 1940 to 1986. He was relieved of his



**LARGEST ELECTION:** 379 million people voted in 1984 in India at 480,000 polling places, choosing from among 5,301 candidates. (Rex Feature)

post on Nov 1, 1986, aged 82, having served on the Central Committee of the CPSU Union since 1952.

The longest span as a legislator was 83 years by József Madarász (1814–1915). He first attended the Hungarian Parliament in 1832–6 as *oblegatus absentium* (i.e. on behalf of an absent deputy). He was a full member in 1848–50 and from 1861 until his death on Jan 31, 1915.

### Most Coups

Statisticians contend that Bolivia, since it became a sovereign country in 1825, has had 191 *coups d'état*. The most recent occurred on June 30, 1984, when President Herman Siles Zuazo, 70, was kidnapped from his official residence by 60 armed men.

### Largest Elections

The largest elections were those beginning on Dec 24, 1984 for the 542-seat Indian *Lok Sabha* (House of the People) in which 379 million eligible voters chose from among 5,301 candidates at 480,000 polling places manned by a 2½ million staff.

The most candidates for one office were 301 to represent Belgium City in the State Assembly in Karnataka, India, on Mar 5, 1985.

### Closest Elections

The ultimate in close general elections occurred in Zanzibar (now part of Tanzania) on Jan 18, 1961, when the Afro-Shirazi Party won by a single seat, after the seat of Chake-Chake on Pemba Island had been gained by a single vote.

The narrowest recorded percentage win in an election would seem to be for the office of Southern District highway commissioner in

Mississippi on Aug 7, 1979. Robert E. Joiner was declared winner over W. H. Pyron with 133,587 votes to 133,582. The loser got more than 49.9999% of the votes.

## Most One-Sided Elections

North Korea recorded a 100% turn-out of electors and a 100% vote for the Workers' Party of Korea in the general election of Oct 8, 1962.

The next closest approach was in Albania on Nov 14, 1982 when a single voter spoiled national unanimity for the official (and only) Communist candidates, who thus obtained only 99.99993 percent of the poll in a 100 percent turn out of 1,627,968.

The highest personal majority won by any politician has been 424,545 votes from a total electorate of 625,179 achieved by Ram Bilas Paswan, the Janata candidate for Hajipur in Bihar, India, in Mar 1977.

In the Liberian presidential election of 1927 President Charles D. B. King (1875-1961) was returned with a majority over his opponent, Mr Thomas J. R. Faulkner of the People's Party, officially announced as 234,000. President King thus claimed a "majority" more than 15½ times greater than the entire electorate.

## Communist Parties

The largest national Communist party outside the USSR (which had 19 million members in 1986) and Communist states has been the Partito Comunista Italiano (Italian Communist Party), with a membership of 2,300,000 in 1946. The total fell to 1,600,000 by 1986. The membership in mainland China was estimated to be 44 million in 1987.

## Voting Ages

The eligibility extremes for voting are 15 years of age in the Philippines and 25 years in Andorra.

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## 2. MILITARY AND DEFENSE

### WAR

#### Longest War

The longest of history's countless wars was the "Hundred Years' War" between England and France, which lasted from 1338 to 1453 (115 years), although it may be said that the nine Crusades from the First (1096-1104) to the Ninth (1270-91), extending over 195 years, comprised a single Holy War.

The Swiss Jean Jacques Babel estimated that since c. 3500 bc there have only been 292 years without recorded warfare.

#### Shortest War

The shortest war on record was that between the UK and Zanzibar (now part of Tanzania) from 9:02 to 9:40 a.m. on Aug 27, 1896. The

UK battle fleet under Rear-Adm Harry Holdsworth Rawson (1843-1910) delivered an ultimatum to the self-appointed Sultan Sa'id Khalid to evacuate his palace and surrender. This was not forthcoming until after 38 min of bombardment. Admiral Rawson received the Brilliant Star of Zanzibar (first class) from the new Sultan Hamud ibn Muhammad. It was proposed at one time that elements of the local populace should be compelled to defray the cost of the ammunition used.

### Most Destructive War

In the Paraguayan war of 1864-70 against Brazil, Argentina and Uruguay, Paraguay's population was reduced from 1,400,000 to 220,000, of whom only 30,000 were adult males.

### Largest Armed Forces

Numerically the largest regular armed force in the world is that of the USSR with 5,130,000 (1986). China's People's Liberation Army's strength in 1986 was 2,100,000 with reductions continuing. Her reserves number 5¼ million and her paramilitary forces of armed and unarmed militias are estimated by the International Institute of Strategic Studies at "some 12 million." The US military manpower is 2,143,000.

### Largest Army

Numerically, the world's largest army is that of the People's Republic of China, with a total strength of some 2,100,000 in mid-1986. The total size of the USSR's army in mid-1986 was estimated by the International Institute of Strategic Studies at 1,991,000 men, believed to be organized into 205 divisions.

### Largest Navies

The largest navy in terms of manpower is the US Navy, with 570,973 sailors and 196,275 Marines in mid-1986. The active strength in 1985 included 5 nuclear-powered with 10 other aircraft carriers, 3 battleships, 93 nuclear attack submarines and 4 diesel attack submarines, 31 cruisers, 68 destroyers, 106 frigates, and 60 amphibious warfare ships.

The USSR Navy has a larger submarine fleet of 374 vessels (118 nuclear, 256 diesel). It has 5 aircraft carriers, 36 cruisers and 61 destroyers.

### Oldest Army

The oldest army is the 83-strong Swiss Guard in the Vatican City, with a regular foundation dating back to Jan 21, 1506. Its origins, however, extend back before 1400.

### Tallest and Youngest Soldiers

The tallest soldier of all time was Väinö Myllyrinne (1909-63) who was inducted into the Finnish Army when he was 7 ft 3 in and later grew to 8 ft 3 in. The youngest, Marshal Duke of Caxias (b Aug 25, 1803-d May 7, 1880) entered an infantry regiment of the Brazilian

army at the age of 5 in 1808, and became a military hero and statesman.

## **Largest Air Force**

The greatest air force of all time was the US Army Air Corps (now called the US Air Force), which had 79,908 aircraft in July 1944, and 2,411,294 personnel in March 1944. The US Air Force, including strategic air forces, had 605,805 personnel and 4,887 combat aircraft in mid-1986. The USSR Air Force had 453,000 men in mid-1986. It had 5,150 combat aircraft, and the Offensive Strategic Rocket Force had about 298,000 operational personnel in mid-1986.

## **Longest Marches**

The longest march in military history was the famous Long March by the Chinese Communists in 1934-5. In 368 days, of which 266 days were days of movement, from Oct to Oct, their force of 90,000 covered 6,000 miles from Kiangsi to Yen-an in Shensi via Yunnan. They crossed 18 mountain ranges and six major rivers and lost all but 22,000 of their force in continual rear-guard actions against Nationalist Kuo-min-tang (KMT) forces.

The record road march (11 men with 40 lb packs) over a marathon (26 miles 385 yds) was 6 hours 26 min 23.22 sec by Company D, 1st Battalion, US Army Intelligence School, Fort Devens, Mass., on June 30, 1983.

## **Heaviest and Fastest Tanks**

The heaviest tank ever constructed was the German Panzer Kampfwagen Maus II, which weighed 212 tons. By 1945 it had reached only the experimental stage and was not proceeded with.

The heaviest operational tank used by any army was the 91.3-ton 13-man French Char de Rupture 2C bis of 1923. It carried a 155-mm howitzer and had two 250-hp engines giving a maximum speed of 12 mph. The most heavily armed tank since 1972 has been the Soviet T-72 with a 125-mm high velocity gun.

The world's fastest tank is the British Scorpion AFV which can reach 50 mph, with 75% payload.

## **Largest Guns**

The two most massive guns ever constructed were used by the Germans in the siege of Sevastapol on the Eastern Front in World War II. They were of a caliber of 800 mm (31.5 in) with barrels 94 ft 8 in long, and named Dora and Gustav. Their remains were discovered: one near Metzenhof, Bavaria in Aug 1945 and the other in the Soviet zone of Germany. They were built by Krupp as railway guns, carried on 24 cars, two of which had 40 wheels each. The whole assembly of the gun was 141 ft long and weighed 1,482 tons, requiring a crew of 1,500 men. The range for a 9¼-ton projectile was 29 miles.

## **Greatest Range**

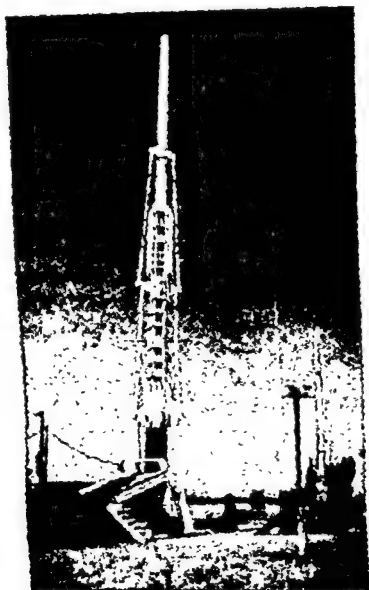
The greatest range ever attained by a gun is by the HARP (High Altitude Research Project) consisting of two 16-in/50-caliber barrels in tandem, 119.4 ft long and weighing 165 tons, at Yuma, Ariz. On Nov

19, 1966, a 185-lb projectile was fired to an altitude of 111.8 miles (590,550 ft). The static V3 underground firing tubes built by the Germans in 50° shafts at Mimoyecques, near Calais, France to bombard London were never operative, due to RAF bombing.

## Largest Catapults

The largest military catapults, or onagers, could throw a missile weighing 60 lb a distance of 500 yd.

**GUN WITH GREATEST RANGE:** The HARP can shoot two 16-in/50-caliber barrels, one after the other, each 119.4 ft long and 165 tons in weight. A 185-lb projectile was fired to a height of 590,550 ft in a test in Ariz in 1966.



## Largest Cannon

The highest caliber cannon ever constructed is the *Tsar Puchka* (King of Cannons), now housed in the Kremlin, Moscow. It was built in the 16th century with a bore of 920 mm (36.2 in) and a barrel 10 ft 5 in long. It weighs 44 tons.

The Turks fired up to seven shots per day from a bombard 26 ft long, with an internal caliber of 42 in, against the walls of Constantinople (now Istanbul) Apr 12-May 29, 1453. It was dragged by 60 oxen and 200 men and fired a stone cannonball of 1,200 lb.

## Mortars

The largest mortars ever constructed were Mallets mortar (Woolwich Arsenal, London, 1857), and the "Little David" of World War II, made in the US. Each had a caliber of 920 mm (36¼ in), but neither was ever used in action.

The heaviest mortar used was the tracked German 600-mm (23.6-in) siege piece known as "Karl" used against Stalingrad.

## Atomic Bombs

The two atom bombs dropped on Japan by the US in 1945 each had an explosive power equivalent to that of 12,500 tons (12.5 kilotons) of trinitrotoluene, called TNT. The one dropped 1,670 ft above Hiroshima, code-named "Little Boy," was 10 ft long and weighed 9,000 lb.

The most powerful thermonuclear device so far tested is one with a power equivalent to 57 million tons of TNT, or 57 megatons, detonated by the USSR in the Novaya Zemlya area at 8:33 a.m. GMT on Oct 30, 1961. The shock wave was detected to have circled the world three times, taking 36 hours 27 min for the first circuit. Some estimates put the power of this device at between 62 and 90 megatons. The largest US H-bomb tested was the 18–22 megaton "Bravo" at Bikini Atoll, Marshall Islands, Mar 1, 1954. On Aug 9, 1961, Nikita Khrushchev, then the Chairman of the Council of Ministers of the USSR, declared that the Soviet Union was capable of constructing a 100-megaton bomb, and announced the possession of one in East Berlin, Germany, on Jan 16, 1963. Such a device could make a crater in rock 355 ft deep and 1.8 miles wide and a fireball of 46,000 ft, or 8.7 miles, in diameter.

## Largest Nuclear Weapons

The most powerful ICBMs are the USSR's SS-18s (Model 5) believed to be armed with ten 750-kiloton MIRVs (multiple independently-targetable re-entry vehicles). Models 1 and 3 have a single 20-megaton warhead.

The US Titan II carrying a W-53 warhead was rated at 5 to 9 megatons but is now withdrawn, leaving the 1–2 megaton W-56 as the most powerful US weapon.

### "Star Wars"

The first reported successful "high frontier" interception test in outer space by the US Strategic Defense Initiative occurred over the Pacific on June 10, 1984.

## Nuclear Delivery Vehicles

As of mid-1986 the USSR deployed 2,502 strategic nuclear delivery vehicles or 252 above the SALT II contractual ceiling. The USA on the same date deployed 1,910 vehicles or 340 below the 2250 SALT II limit. The comparative number of warheads has been estimated by the International Institute for Strategic Studies at USSR 10,716 and USA 12,846.

### 3. JUDICIAL

## LITIGATION

### Longest Trial

The longest trial in criminal history was *People of the State of California vs Angelo Buono, Jr.* involving 10 charges of the Hillside murders of young women from Oct 18, 1977 to Feb 1978. The jury trial took 345 trial days over 2 years 2 days (Nov 16, 1981–Nov 18, 1983) with a 57,079-page transcript, 400 witnesses and 2,000 exhibits. Judge Ronald M. George imposed nine sentences of life without parole on Jan 9, 1984.

### Best-Attended Trial

The greatest attendance at any trial was at that of Major Jesús Sosa Blanco, aged 51, for an alleged 108 murders. At one point in the 12½-hour trial (5:30 p.m. to 6 a.m., Jan 22–23, 1959), 17,000 people were present in the Havana Sports Palace, Cuba. Blanco was executed on Feb 18, 1959.

### Largest Award Won Without Attorney

Dr Mark Feldman, a podiatric surgeon of Lauderhill, Fla, became the first litigant in person (without the services of an attorney) to secure 7 figures (\$1 million) before a jury in compensatory and punitive damages in Sept 1980. The case concerned conspiracy and fraud alleged against 6 other doctors.

### Highest Bail

The highest bail ever ordered was \$1 billion each for two suspected illicit drug dealers in Suffolk County, Long Island, NY, in May 1986. Judge Louis L. Ohlig of the District Court was the judge, who said, "They're not going to be handled with kid gloves any more." The suspects were alleged to be part of a ring that smuggled \$24 million of cocaine per month into the US.

Hassen Ebtchaj, later Chairman of the Iranian Bank in Teheran, was granted bail in 1967 in excess of \$50 million.

### Breach of Contract

The greatest damages ever awarded for a breach of contract were £610,392 (\$1,709,000), awarded July 16, 1930, to the Bank of Portugal against the printers Waterlow & Sons Ltd of London, arising from their unauthorized printing of 580,000 five-hundred escudo notes in 1925. This award was upheld in the House of Lords on Apr 28, 1932. One of the perpetrators, Arthur Virgilio Alves Reis, served 16 years (1930–46) in jail.

### Greatest Personal Injury Damages

The greatest personal injury damages ever awarded were to an unnamed boy born during a complicated 45-min birth at the US Army's Letterman General Hospital in 1979. If the child, which had



"total cerebral palsy," lives out his expected years, the potential US government payment could amount to \$70 million.

A Bronx Supreme Court jury on July 18, 1986 awarded \$65,086,000 to Mrs Agnes Mae Whitaker against the New York Health and Hospitals Corporation for medical malpractice.

On Nov 24, 1983 a jury in Corpus Christi, Tex awarded punitive damages of \$106 million against Ford Motor Co for alleged design faults in the Ford Mustang II in which Bevary Durrill, 20, died in 1974. An appeal is pending.

## Greatest Compensation for Wrongful Imprisonment and Death

Isadore Zimmerman (1917-83) of NY spent 24 years in prison before his conviction for murdering a cop was overturned because of new evidence. On his release at age 66 he was awarded \$1 million, which is equivalent to \$42,000 for each year he spent in prison. But, after legal fees and expenses, he ended up with only 60 percent of the million. Zimmerman decided not to appeal the award, and died a little more than a year later.

A jury in Volusia county, Florida, on Apr 25, 1984 awarded \$200,150,000 to the mother of a 20-year-old high school girl who was one of the 41 victims of the confessed murderer, Gerald Stano. The killer, who must pay this sum, is in prison for life awaiting a number of other sentences.

## Money and Divorce Settlement

Libyan-born Sheika Dena Al-Fassi, 23, filed the highest ever money claim of \$3 billion against her former husband Sheikh Jamshed Al-Fassi, 28, of the Saudi Arabia royal family, in LA, Calif, in Feb 1982. Explaining the size of the settlement claim, lawyer Edwin Mitchelson alluded to the Sheikh's wealth which included 14 homes in Florida alone and numerous private aircraft. When in 1983 she was awarded \$81 million she declared herself "very very happy" because she was able to collect

the reported divorce settlement achieved by the lawyers of Soraya Iskhoggi was £500 million (\$800 million) plus property from her husband Adnan. Mrs Anne Bass, former wife of Sid Bass of Texas, reported to have rejected \$535 million as inadequate to live in the style to which she had been made accustomed.

## Famous Suits

A sum of \$16.8 million was awarded to Dr John J. Wild, 58, at the Hennepin District Court of Minnesota on Nov 30, 1972, against the Minnesota Foundation and others for defamation, bad-faith termination of a contract, and interference with professional business relationships, plus \$10.8 million in punitive damages. The Supreme Court of Minnesota reduced the award to \$1.5 million on Jan 10, 1975, but awarded Dr. Wild the option of a new trial. There was a no-disclosure clause in the settlement.

The \$39.6 million awarded in Columbus, Ohio on Mar 1, 1980, to plaintiff Robert Guccione, publisher of *Penthouse*, for defamation against Larry Flynt, publisher of *Hustler*, was reduced by Judge Craig

Wright to \$4 million on Apr 17, 1980. The hearing ended in May 1982 with *Penthouse* being cleared of libel in a countersuit.

A \$640-million libel suit was brought by the Calif resort La Costa against *Penthouse* in Mar 1975. In May 1982 a jury found for the magazine. In July their verdict was set aside by a Calif judge, who was then removed from the case. Costs exceed \$10 million to date.

### Heaviest Fine

The Securities and Exchange Commission on Nov 14, 1986 fined Ivan Boesky, 49, the New York arbitrageur, \$100 million for breaching their regulations on insider trading.

### Longest Lease

The longest lease on record is for 10 million years for a plot for a sewage tank adjoining Columb Barracks, Ireland, signed on Dec 3, 1888.

### Most Literal Legal Interpretation

Eugene Schneider of Carteret, NJ, cut his \$80,000 home in half with a chain saw in July 1976 after his wife sued him for divorce, thus fulfilling in his eyes the equal division of property required by NJ law. Encouraged by this case, Virgil M. Everhart of Central City, Ky, 57, chopped and sawed away at his house with TV cameras turning on Jan 20, 1983, until he was stopped by a judge who criticized his "cute trick" and made an alimony award to his wife instead.

### Shortest and Longest Wills

The shortest valid will in the world is "Vse zene," the Czech for "All to wife," written and dated Jan 19, 1967, by Herr Karl Tausch of Langen, Hesse, Germany. The shortest will contested but subsequently admitted to probate in English law was the case of *Thorne v. Dickens* in 1906. It consisted of the three words "All for Mother" in which "mother" was not his mother but his wife.

The longest will on record was that of Mrs Frederica Evelyn Stilwell Cook (US), proved on Nov 2, 1925 at Somerset House, London. It consisted of four bound volumes containing 95,940 words.

### Patent Case

On Mar 13, 1986 Hughes Tool Co of Houston, Tex was awarded \$205,381,259.40 in a suit involving Smith International Inc over an infringement of their patent for the "O" Ring seal used in drilling. The inventor was Edward M. Galle.

### Youngest Judges

No collated records on the ages of judicial appointments exist. However, David Elmer Ward had to await the legal age of 21 before taking office after nomination in 1932 as Judge of the County Court at Fort Myers, Fla.



ambush near Armenia on Jan 22, 1963. Some sources attribute 3,500 slayings to him, 1945-62.

The highest homicide rates recorded in NYC have been 58 in a week in July 1972, and 13 in a day in Aug 1972. In 1973, the total for Detroit (population then 1,500,000) was 751. The Chicago Crime Commission in Mar 1983 published a list of 1,081 unsolved gang slayings since 1919.

The country with the lowest officially recorded rate in the world is the Maldives (islands in the Indian Ocean, pop. 100,833 in 1966) with a nil rate among its nationals since its independence in July 1965. In the Indian state of Sikkim, in the Himalayas, murder is practically unknown, while in the Hunza area of Kashmir, in the Karakoram, only one definite case by a Hunzarwal has been recorded since 1900.

## Suicide

The estimated daily rate of suicides throughout the world surpassed 1,000 in 1965. The country with the highest recorded suicide rate is Denmark with 286 per 100,000 of the population in 1986. The country with the lowest recorded rate is Jordan, with a single case in 1970 and hence a rate of 0.04 per 100,000.

The final total number of victims of the mass cyanide poisoning of the Peoples Temple cult near Port Kaituma, Guyana, Nov 18, 1978 was 913. The leader was the paranoid "Rev" Jim Jones of San Francisco, who had deposited millions of dollars overseas.

The volcanic crater of Mt Mihara on an island in Sagami Bay, south of Yokohama, Japan was the scene of more than 1,000 suicides in 1933-36.

## Largest Hangings

The most people hanged from one gallows were 38 Sioux Indians by William J. Duly outside Mankato, Minn, for the murder of unarmed citizens on Dec 26, 1862.

The Nazi Feldkommandant simultaneously hanged 50 Greek resistance men as a reprisal in Athens on July 22, 1944.

## Longest Prison Sentences

A 10,000-year sentence was imposed on Deuel Wilhelm Davies, 40, on Dec 4, 1981, in Tuscaloosa, Ala, for a triple murder (including his mother-in-law) in 1976. A sentence of 384,912 years was demanded at the prosecution of Gabriel March Grandos, 22, at Palma de Mallorca, Spain, March 11, 1972, for failing to deliver 42,768 letters, a sentence of 9 years per letter.

Juan Corona, a Mexican-American, was sentenced on Feb 5, 1973, at Fairfield, Calif, to 25 consecutive life terms for murdering 25 migrant farm workers he had hired, killed and buried in 1970-71 near Feather River, Yuba City, Calif. His 20th century record was surpassed in 1974 by Dean Corll (27 victims) of Houston, Tex, and in 1980 by John Wayne Gacy (33 victims).

## Longest Time Served

Paul Geidel (b Apr 21, 1894) was convicted of 2nd degree murder on Sept 5, 1911 as a 17-year-old porter in a NYC hotel. He was released from the Fishkill Correctional Facility, Beacon, NY, aged 85,

on May 7, 1980, having served 68 years 8 months 2 days—the longest recorded term in US history. He had first refused parole in 1974.

Rudolph Hess (b Apr 26, 1894), formerly Hitler's deputy, was captured at Eaglesham Eng., on May 10, 1941 and in 1987 entered his 47th year in prison.

## Greatest Mass Arrest

The greatest mass arrest reported in a democratic country was of more than 13,000 people in an antiwar demonstration designed to block rush-hour traffic in Wash, DC, May 3–5, 1971.

## Most Secure Prison

After it became a maximum security Federal prison in 1934, no convict was known to have lived to tell of a successful escape from the prison on Alcatraz Island in San Francisco Bay. A total of 23 men attempted it, but 12 were recaptured, 5 shot dead, one drowned and 5 presumed drowned. On Dec 16, 1962, three months before the prison was closed, one man reached the mainland alive, only to be recaptured on the spot. John Chase was imprisoned for a record 26 years on Alcatraz.

## Greatest Jail Break

In Feb 1979, US Army Col Arthur "Bull" Simons (ret) led a band of 14 to break into Gasre prison, Teheran, Iran, to rescue two fellow Americans. Some 11,000 other prisoners took advantage of this and the Islamic revolution in what became history's largest jail break.

## Theft

The government of the Philippines announced on Apr 23, 1986 that it had succeeded in identifying \$860.8 million that had been "salted away" by former president Ferdinand Edralin Marcos (b Sept 11, 1917) and his wife Imelda. The total stolen, it was asserted, since Nov 1965, was believed to be between \$5 and \$10 billion.

## Robbery

The greatest robbery on record was that of the Reichsbank following Germany's collapse in Apr/May 1945. The Pentagon described the event first published in the *Guinness Book* in 1957 as "an unverified allegation." *Nazi Gold*, a book by Ian Sayer and Douglas Botting published in 1984, revealed full details and estimated the total haul at current values as £2,500 million (\$3 billion).

The greatest amount lost in a small robbery was on Nov 26, 1983 when £26,369,778 (\$36,000,000) worth of gold and platinum in the form of 6,800 bars, together with diamonds and travelers checks, in 76 boxes were removed by 6 masked men from a warehouse vault of Brinks Mat Ltd at Heathrow, England. Michael McAvoy, 32, of East Dulwich, and Brian Robinson, 41, of Lewisham, were each sentenced to 25 years at the Old Bailey on Dec 3, 1984.

An equal amount (est. \$36 million) was lost in a haul from 352 safe deposit boxes in Banca Nazionale del Lavoro, Italy, during June 29–July 2, 1984.



**THEFT:** When Imelda Marcos left her 3,000 pairs (later revised to 1,060 pairs) of shoes in the Philippines palace, she and her husband were accused of "salting away" between \$5 and \$10 billion out of government funds. (AP Wirephoto)

## Art Theft

Since a price for the *Mona Lisa* at the time of its theft from the Louvre on Aug 21, 1911, cannot be established, it has to be considered the highest price painting ever stolen. It was recovered in Italy in 1913 when Vincenzo Perruggia was charged with its theft. On Oct 27, 1985 paintings valued at 100 million francs (\$14 million) were moved from the Mermotte Museum, Paris.

In a theft from the National Anthropology and History Institute, Mexico City, on Dec 25, 1985, some 140 "priceless" gold, jade and Aztec artifacts were taken.

## Bank Robbery

During the extreme civil disorder prior to Jan 22, 1976, in Beirut, Lebanon, a guerrilla force blasted the vaults of the British Bank of the Middle East in Bab Idriss and cleared out safe deposit boxes with contents valued by former Finance Minister Lucien Dahadah at \$50 million, and by another source at an "absolute minimum" of \$20 million.

## Jewel Robbery

The greatest recorded theft of jewels was from the bedroom of the "well-guarded" villa of Prince Abdel Aziz Ben Ahmed Al-Thani near Cannes, France, July 24, 1980, valued at \$16 million.

## Train Robbery

The greatest recorded train robbery occurred between 3:03 a.m. and 3:27 a.m. on Aug 8, 1963, when a General Post Office mail train from

Glasgow, Scotland was ambushed at Sears Crossing and robbed at Bridego Bridge near Mentmore, Buckinghamshire, England. The gang escaped with about 120 mailbags containing £2,631,784 (\$6,053,103) worth of bank notes being taken to London for pulping. Only £343,448 (\$961,654) was recovered.

## Maritime Fraud

A cargo of 198,000 tons of Kuwaiti crude oil on the supertanker *Salem* at Durban was sold without title to the South African government in Dec 1979. The ship mysteriously sank off Senegal on Jan 17, 1980 leaving the government to pay \$305 million to Shell International who owned the shipment.

## Greatest Kidnapping Ransom

Historically, the greatest ransom paid was that for their chief, Atahualpa, by the Incas to the Spanish conquistador Francisco Pizarro, in 1532-33 at Cajamarca, Peru, which included a hall full of gold and silver, worth in modern money some \$170 million.

The greatest ransom ever extorted is \$60 million for the release of two businessmen, the brothers Jorge Born, 40, and Juan Born, 39, of Argentina, paid to the left-wing urban guerrilla group Montoneros in Buenos Aires, June 20, 1975.

The youngest person ever kidnapped has been Carolyn Wharton, who was born at 12:46 p.m., March 19, 1955, in the Baptist Hospital, Beaumont, Tex., and kidnapped by a woman disguised as a nurse at 1:15 p.m., when the baby was aged 29 min.

## Greatest Hijack Ransom

The highest amount ever paid to aircraft hijackers has been \$6 million by the Japanese government in the case of a JAL DC-8 held at Dacca airport, Bangladesh on Oct 2, 1977 with 38 hostages. Six convicted criminals were also exchanged. The Bangladesh government had refused to sanction any retaliatory action.

## Computer Fraud

Between 1964 and 1973, some 64,000 fake insurance policies were created on the computer of the Equity Funding Corporation involving \$2,000 million

Stanley Mark Rifkin (b 1946) was arrested in Carlsbad, Calif by the FBI on Nov 6, 1978, charged with defrauding a Los Angeles bank of \$10.2 million by manipulation of a computer system. In June 1980 he was sentenced to 8 years

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## 4. ECONOMIC

### MONETARY AND FINANCE

#### Largest Budget

The greatest annual expenditure budgeted by any country is \$984,803 million by the US Government (Federal expenditure) for the

fiscal year 1986. The highest-ever revenue was \$769,091 million for the same fiscal year.

In the US, the greatest surplus was \$8,419,469,844 in 1947-48, and the greatest budgeted deficit was the \$220,700 million for the fiscal year ending Sept 30, 1986.

### Record Deficit and Surplus

The record deficit for any country for a fiscal year is \$140,569 million in 1986 by the US. The record surplus was 8,358 billion yen (\$52,680 million) by Japan in the calendar year 1985.

### Foreign Aid

The total net foreign aid given by the US Government between July 1, 1945, and Jan 1, 1986, was \$256,516 million.

The country which received most US aid in 1987 was Israel with \$3,808 million. US foreign aid began with \$50,000 to Venezuela for earthquake relief in 1812.

### Highest Tax Rates

The country with the most confiscatory taxation is Norway where in Jan 1974 the Labor Party and Socialist Alliance abolished the 80% top limit. Some 2,000 citizens were then listed in the *Lignings Boka* as paying more than 100% of their taxable income. The shipping magnate Hilmer Reksten was assessed at 491%.

### Highest Tax Demand

The highest recorded personal tax demand is one for \$336 million for 70% of the estate of Howard Hughes.

### Least Taxed People

The lowest income tax is paid by the citizens of Bahrain, Kuwait, Brunei and Qatar, where the rate, regardless of income, is zero.

### Poorest Country

The lowest annual income per person in any country is Chad with \$59 in 1983.

### National Wealth Per Capita

The richest nation, measured by average income per capita of population, is United Arab Emirates with \$19,120 in 1985. The US, which had taken the lead in 1910, was 3rd behind Brunei as well.

It has been estimated that the value of all physical assets in the US in Jan 1983 was \$12.5 trillion or \$53,800 per head.

### National Debt

The largest national debt is that of the US, where the gross Federal public debt surpassed the trillion dollar mark in 1981. By May 1986, it had reached \$2,112 billion, with a servicing cost of \$187.1 billion.



## Foreign Debt

The country most heavily in overseas debt is Brazil with \$108.8 billion by Jan 1987. Suspension of interest payments was announced on Feb 20, 1987.

## Gross National Product

The country with the largest GNP is the US. After reaching \$3 trillion in 1981, it is running at the rate of \$4,258.7 billion in 1987.

## Gold Reserves

The country with the greatest monetary gold reserve is the US, whose Treasury had 263.90 million fine oz of the world's 949.86 million fine oz on hand in Mar 1987. Valued at \$400 per fine oz, these amounts translate to \$105,560 million and \$379,944 million, respectively. The US Bullion Depository at Fort Knox, 30 miles southwest of Louisville, Ky, has been the principal depository of US gold since 1936.

## Worst Inflation

The world's worst inflation occurred in Hungary in June 1946, when the 1931 gold pengő was valued at 130 quintillion ( $1.3 \times 10^{21}$ ) paper pengős. Notes were issued for "Egymillard" billion (1 followed by 21 zeros or  $10^{21}$ ) pengős on June 3 and withdrawn on July 11, 1946. Notes for 1 sextillion or  $10^{27}$  pengős were issued for tax payments only.

In Germany, on Nov 6, 1923, the circulation of Reichsbank marks reached 400,338,326,350, 700,000,000, a level of inflation 755,700 million times the 1913 levels.

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## COINS

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Oldest	c. 670 BC: electrum staters of King Gyges of Lydia, Turkey <sup>1</sup>
Earliest Dated	MCCXXXIII (1234). Bishop of Roskilde coins, Denmark (6 known)
Heaviest	43 lb 7¼ oz: Swedish 10 daler copper plate, 1644. See Million Dollar Gold Piece (next page)
Lightest and Smallest	0.002 g or 14,000 to the oz: Nepalese silver ¼ Jawa, c. 1740
Rarest	Many "singletons" known: for example, only 700 Axumite coins are known, of which only one was made of bronze and gold of Kaleb I c. 500 AD

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<sup>1</sup> Chinese uninscribed "spade" money of the Chou dynasty has been dated to c. 770 BC

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## Currency

Paper money is an invention of the Chinese, first tried in 910 AD and prevalent by 970 AD. The world's earliest bank notes (*banco-sedlar*) were issued in Stockholm, Sweden, in July 1661, the oldest survivor being one for 5 dalers dated Dec 6, 1662.

The largest paper money ever issued was the one kwan note of the Chinese Ming dynasty issue of 1368-99, which measured  $9 \times 13$  in and was printed on mulberry-bark paper. Three of them were sold at auction for a total of \$1,000 in London on Oct 7, 1983. The smallest note ever issued by a bank was the 10 bani note of the Ministry of Finance of Rumania, issued in 1917. It measured (printed area)  $1.09 \times 1.49$  in.

Of German *notgeld* (emergency notes) the smallest were the 1-3 pfennig of Passau (1920-21) measuring  $0.70 \times 0.72$  in. A 200-billion-mark note of the 1920's was auctioned in London Oct 7, 1983 for \$255.

## Largest Government-Issued Gold Coin

The largest known government-issued gold coin is the 200-mohur denomination struck in 1654 by the Moghul Emperor Shah-Jahan of Hindustan. This immense gold piece, the size of a saucer, is  $5\frac{3}{8}$  in in diameter and weighs just over 70 ounces, making it equal to about 71 US \$20 gold pieces with a face value of \$1,420 and a bullion value of nearly \$30,000.

A shroud of mystery envelops this coin since its present whereabouts are unknown, although it was last reported as being held by a nobleman in Patnah, India, in the 1820s. A cast of the original 200 mohurs is now housed at the British Museum, London.

## Highest and Lowest Denomination Currency

The highest denomination notes in circulation are US Federal Reserve Bank notes for \$10,000. They bear the head of Salmon Portland Chase (1808-73), Secretary of the Treasury during Civil War days. None have been printed since July 1944 and the US Treasury announced in 1969 that no further notes higher than \$100 would be issued. Only 348 of the \$10,000 bills remain in circulation.

The lowest denomination legal tender bank note is the 1 sen (or 1/100th of a rupiah) Indonesian note. Its exchange value in mid-1984 was 1,000 to the US penny.

## Greatest Coin Collections

The highest price ever paid was \$25,235,360 for the Garrett family collection of US and colonial coins which was donated to Johns Hopkins University. The sales were made at a series of 4 auctions held Nov 28-29, 1979 and Mar 25-28, 1981 at the Bowers & Ruddy Galleries in Wolfeboro, NH. The collection had been put together by members of the Garrett family from 1860-1942.

The most valuable coin collection formed by a single individual to be sold at public auction was the Louis Eliasberg Collection of US gold coins. The collection, grouped into 1,074 lots, was sold by Bowers & Ruddy Galleries in NYC Oct 27-29, 1982 for \$12.1 million. This is also the highest total realization for a single coin auction. Eliasberg was a prominent Baltimore banker.

Virgil M. Brand (1862–1926), St. Louis brewing magnate, is reputed to have once assembled the world's largest and most valuable private collection of rare coins. In 40 years of collecting, he gathered together nearly 375,000 coins, from ancient to modern, including more than 50,000 gold coins. He had a particular penchant for great rarities, and managed to acquire two 1787 Brasher "Doubloons" (see below), the most valuable US gold piece, along with numerous unique specimens.

Shortly after Brand's death, his heirs began dispersing the collection through private treaty and auction sales, a process requiring nearly 60 years to complete. Several major Brand coin auctions took place in the early 1980s. Numismatic experts say that the Brand holdings contained so many great rarities that if the collection were intact today it would easily yield over \$250 million.

The most valuable coin collection still in private hands, according to *Fortune* Magazine, is owned by the two "billionaire" Hunt brothers of Houston, Tex.—Nelson Bunker Hunt and Herbert Hunt. Their collection, which contains everything from the rarest of Greek and Roman coins to modern gold pieces, is reputed to be worth in excess of \$50 million.

The highest price paid at auction for a single coin is \$725,000 for an extremely rare US 1787 Brasher "Doubloon" at Bowers & Ruddy Galleries, NYC, Nov 29, 1979. This storied gold piece, weighing some 408 grains, was produced by Ephraim Brasher, a New York goldsmith, to equal the value of a Spanish doubloon (about \$16.00). Only about six specimens are known to be extant.

A \$1 million set of 1804 US coins (including the rare silver dollar) was presented to the King of Spain by dealer Lester Merkin in 1979.

### Million Dollar Gold Piece

The largest souvenir coin was one single piece issued on Mar 21, 1986 for the World Exposition '86 in Vancouver, BC, Canada—a \$1 million gold piece, 37½ in in diameter, ¾ in thick, weighing 365 lb avoirdupois (3,123 troy oz. of 14-carat gold). The gold was rented from Leach & Garner Co., of Attleboro, Mass, the coin was minted by them, and, on return from Vancouver, was melted down.

### Largest Mint

The largest mint is the US Mint built in 1965–69 on Independence Mall, Philadelphia, covering 500,000 sq ft (11½ acres) with an annual capacity on a 3-shift 7-day-a-week production of 8,000 million coins. A single stamping machine can produce coins at a rate of 10,000 per hour.

### Largest Coin Display

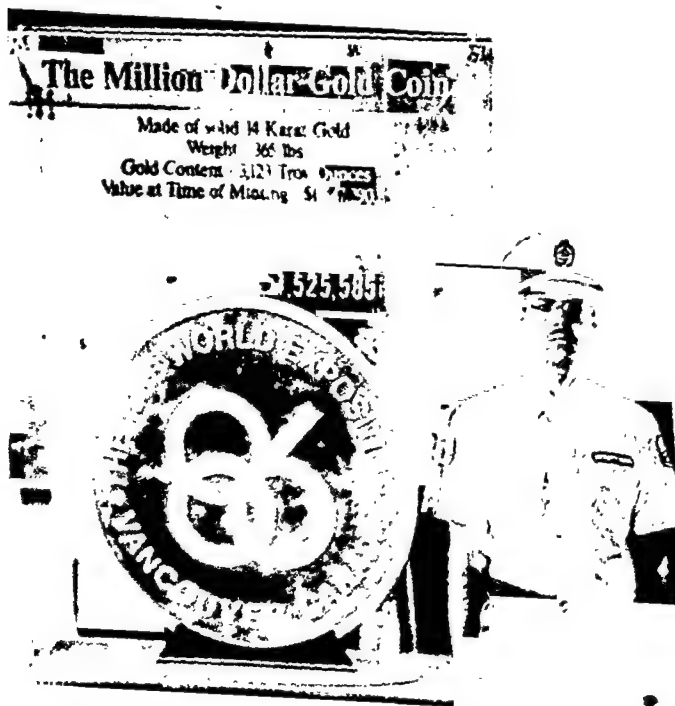
A 10-mi-5-ft-7-in-long line of 662,353 quarters was laid edge-to-edge by 100 volunteers in Atlanta working on Mar 16, 1985 for the National Kidney Foundation of Georgia under the sponsorship of WFOX radio and the Women of Georgia Power. It was the longest and also the most valuable amassed collection, worth \$165,788.25.

### Most Massive Coins

The holed stone discs used for money on the Yap Islands are the

most massive coins ever known. Yap, a 38.7-sq-mile group of islands in the western Pacific is part of the US Trust Territory. The stone discs vary in size from "small change" of less than 9 in in diameter to cartwheel-size stones 12 ft across. Even a medium-sized stone coin is valuable enough to be traded for an 18-ft canoe or one wife!

Copper, cast in the form of a cross, is still used to purchase brides among the peoples of isolated northern Rhodesia (now Zimbabwe). Stones are not the only unusual items that have been used as coins. Glass cast into bricks were used for 900 years or more as currency in China, Tibet and other Asian countries. They were stamped with the value and name of the issuing bank. North American Indians made "wampum" (money) out of strings of beads to trade with colonists and among themselves. The Chinese also made spade-shaped coins of bronze, and round copper coins with square center holes which they called "cash."



**MOST VALUABLE:** In Canadian dollars, this 3'-10" diameter souvenir gold coin when minted in early 1986 was worth \$1,567,290.35 (US \$1,102,106.70). Made of 14K gold, 1 1/2" thick, it was the centerpiece of the exhibit at Expo '86, Vancouver, protected at all times by a guard. Weight was exactly 361.12 lb. (164,177g Martin).

## World's Biggest Win at Gambling

The world's biggest gambling win is \$20 million in a NY State lottery on July 26, 1984, by Vencero Pagano of the Bronx, NYC, a retired carpenter. He receives \$952,380 per year (less tax) for 20 years.

## World's Biggest Loss

An unnamed Italian industrialist was reported to have lost \$1,920,000 in five hours at roulette in Monte Carlo, Monaco, on March 6, 1974. A Saudi Arabian prince was reported to have lost more than \$1 million in a single session at the Metro Club, Las Vegas, Nev. in Dec 1974.

## Largest Slot Machine

The world's biggest slot machine (or one-armed bandit) is Super Bertha (555 cu ft) installed by Si Redd at the Four Queens Casino, Las Vegas, Nev, in Sept 1973. Once in every 25 billion plays it may yield \$1 million for a \$10 investment.

## Biggest Slot-Machine Win

The biggest beating handed to a "one-armed bandit" was an alleged \$2,478,716.15 by Rocco Dinubilo from Fresno, Calif at Harrah's Tahoe Casino, Nev, on Dec 31, 1983. It is doubtful that the money was ever paid.

## Largest Treasure Troves

The greatest discovery of treasure is the estimated \$2 billion of gold coins and platinum ingots from the sunken Tsarist battleship *Admiral Nakhimov* of 8,524 tons 200 ft down off the Japanese island of Tsushima. She was sunk during the Russo-Japanese War, May 27, 1905.

The largest hoard ever found was one of about 80,000 aurei in Brescello near Modena, Italy, in 1814 believed to have been deposited c. 37 bc. The numerically largest hoard ever found was the Brussels hoard of 1908 containing c. 150,000 coins. A hoard of 56,000 Roman coins was found at Cunetio near Marlborough, Wiltshire, Eng on Oct 15, 1978.

A figure of \$2 billion of bullion has also been ascribed to the *San Jose* which sank in 700-1,200 ft of water off Colombia in 1708. Diving began in Aug 1984.

On July 20, 1985, two sons of Mel Fisher found the main cargo of the Spanish *Nuestra Señora de Atocha* sunk off Key West, Florida in 1622. The value of the cargo already recovered was \$80 million, but is now expected to attain close to \$400 million mainly in silver bars.

## LABOR

### Trade Unions

The largest union is Solidarnosc (Solidarity) in Poland, founded in Nov 1980, which by Oct 1981 was reported to have 8 million members. The union with the longest name is probably the Interna-

National Association of Marble, Slate and Granite Workers, Carvers and Sowers, Tile and Marble Setters, Polishers and Marble Finishers and Terrazzo Workers' National Union, CIO.

## Labor Disputes

A labor dispute concerning membership of the union was recorded in 1155 ac in the temple. The dispute was one by an archbishop (leader of the union) and 309 ac. The cause was that the

The longest recorded strike in Denmark. The longest strike in the fixtures factory of the Automobile Works.

## Working Careers

The longest working life we hear of, years by Mr. Sumi of Japan (see page 14) who started work grading grain annually in a sugar mill at Asan, Tokunoshima, Japan in 1872, his birthday is given as 1869 and retired in 1970, aged 105. He died in 1988, aged 120.

Susan O'Hagan (1802-1909) was in domestic service with 3 generations of the Hall family of Lisburn, near Belfast, Northern Ireland, for 97 years from the age of 10 to light duties at 107.

The longest recorded industrial career in one job was that of Miss Polly Gadsby who started at the age of 9 and worked 86 years wrapping elastic for the same company in Leicester, England until she died in 1932 at the age of 95.

## FOOD AND DRINK

## Calories

Of all countries in the world, based on the latest available data Belgium and Luxembourg have the largest available total of calories per person. The net supply averaged 3,645 per day in 1972. The lowest reported figure is 1,723 calories per day in 1969 (from Burkina Faso) in 1974. The highest caloric value of any foodstuff is that of pure animal fat, with 936 calories per 100 grams. Pure ethanol provides 716 calories per 100 grams.

### Prohibition

The longest-lasting impact of prohibition among countries of alcoholic beverages has been in Puerto Rico. Since the prohibitions have been in Puerto Rico since the 1920s (1920-33). The Faroe Islands have had a public (not private) prohibition since 1912.

### Most Expensive Food

The most expensively priced food (as opposed to spices) is First Choice Black Penford taffies which retail at \$13.20 per 1.44 pound. However, in Jan 1965 in the Hafr El-Baten market, Riyadh, Saudi

Arabia local truffles sold for SR 5000 for 3 kg. equivalent to \$60 per 0.44 oz.

## Spices

Prices for wild ginseng (root of *Panax quinquefolius*), from the Chan Pak Mt area of China, thought to have aphrodisiacal quality, were reported in Nov 1977 to be as high as \$23,000 per oz in Hong Kong. Total shipments from Jilin province do not exceed 141 oz per year. The leading medical journal in the US has likened its effects to "corticosteroid poisoning."

The world's rarest and most prized condiment is Cà Cuong, a secretion recovered in minute amounts from beetles in northern Vietnam. Owing to war conditions, the price rose to \$100 per ounce before supplies virtually ceased in 1975.

The hottest of all spices is claimed to be Siling labuyo from the Philippines. The chili pepper or Capsicum known as Tepin from southwestern US comes in pods  $\frac{3}{8}$  in in diameter. A single dried gram will produce detectable "heat" in 68.3 lb of bland sauce.

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(Per capita per day)

**Protein**  
Australia and New Zealand  
3.79 oz (1969)

**Tea<sup>2</sup>**  
Ireland—0.36 oz (1977)

**Cereals<sup>1</sup>**  
Egypt—21.95 oz (1966-7)

**Coffee<sup>3</sup>**  
Finland—1.28 oz (1980)

**Sugars**  
Bulgaria—6.26 oz (1977)

**Water**  
US—1,600 gal (1984)

**Meat**  
US—10.89 oz (1977)

**Beer**  
W Germany—0.708 pints  
(1981)

**Sweets**  
Britain—1.20 oz (1979)

**Wine**  
France—0.44 pints (1980)

**Liquor**  
Poland—0.026 pints (1978)

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<sup>1</sup> Figures for 1977 from China suggest a possible consumption (including rice) of 31.3 oz.

<sup>2</sup> The most expensive tea is "Oolong Peach Blossom." In June 1983 it retailed for \$27.83 per lb in London. Tea-bags were invented by Thomas Sullivan of New York in 1904.

<sup>3</sup> The most expensive coffee is Jamaican Blue Mountain which retails for up to \$24 per lb in the US.

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## Candy

The top-selling candies are Life Savers, with 33,431,236,300 rolls sold between 1913 and May 1987. A tunnel formed by the holes in the middle placed end to end would stretch to the moon and back more than 3 times. Thomas Syta of Van Nuys, Calif made one last 7 hours 10 min (with hole intact) on Jan 15, 1983.

## Largest Banquets

It was estimated that 30,000 attended an outdoor military feast at Radewitz, Poland, on June 25, 1730, thrown by King August II (1709-1733).

The greatest number of people served indoors at a single sitting was 18,000 municipal leaders at the Palais de l'Industrie, Paris, on Aug 18, 1889.

At the wedding of cousins Menachem Teitelbaum, 18, and Brucha Sima Melsels, 18, conducted by their grandfather Grand Rabbi Moses at Uniondale, LI, NY on Dec 5, 1984 the attendance of the Satmar sect of Hasidic Jews was estimated at 17,000 to 20,000. Meal Mart of Brooklyn, a kosher caterer, provided the food, including 2 tons of gefilte fish.

The most expensive menu ever served was for the main 5½-hour banquet at the Imperial Iranian 2,500th anniversary gathering at Persepolis in Oct 1971 (see *Party Giving* in Chapter 11). It comprised quail eggs stuffed with Iranian caviar, a mousse of crayfish tails in Nantua sauce, stuffed rack of roast lamb, with a main course of roast peacock stuffed with *foie gras*, fig rings, and raspberry sweet champagne sherbet. Wines included *Château Lafite Rothschild* 1945 at \$100 per bottle from the cellars of Maxim's, Paris.

## Biggest Barbecues

Three claimants are contesting for the largest barbecue. At the St. Patrick's Irish Picnic in McEwen, Tenn on July 26, 1986, an estimated 25,000 people consumed or sold 16,000 lb of pork and 2,800 lb of chicken. At the Sertoma Club Barbecue, New Port Richey, Fla, 21,112 lb of beef were consumed Mar 7-9, 1986. At Iolani School, Honolulu, Hawaii, 46,386 barbecued chicken halves were consumed by 15,000 people on Jan 31, 1981.

## Largest Breads

The longest loaf ever baked was a *rosca de Reyes* 2,132 ft 2½ in in length and 1.25 tons in weight at the Exelaris Hyatt Regency Hotel, Acapulco, Mexico on Jan 6, 1985. If a consumer of the *rosca* (twisted loaf) finds the embedded bread doll he has to throw the next *rosca* party.

The largest pan loaf baked was one of 3,051 lb 4 oz measuring 9 ft x 5 ft by the Calgary Italian Bakery and Southern Alberta Bakers' Association on July 7, 1986 at Calgary, Alberta.

## Largest Cakes

The largest cake ever created was a 90,000-lb 8,800-sq-ft "Duncan Hines" cake that used 31,026 boxes of a yellow cake mix, 20,000 layers of 3 lb each, topped with 30,000 lb of vanilla icing. It took 24







## **Longest Noodles**

The longest continuous cooked noodle (939 ft 11 in) was made in Louisville, Colo., by 4 families who joined recipes and noodles for 8 hours on Sept 1, 1985, built a special 20 × 5-ft cooker, and used 230 lb of charcoal, along with 50 lb of flour and 36 eggs.

Mark Pi at his China Gate Restaurant in Columbus, O., set a record by making 2,048 noodle strips in 34.5 sec on Feb 12, 1982, each strip exceeding 5 ft in length.

## **Largest Omelet**

The largest omelet was one made of 45,000 eggs in a pan 10 × 43 ft, cooked by the Kinsman's Mothers' March of British Columbia, Canada, at Hotel Meridien, Vancouver, on Jan 27, 1986.

## **Largest Pancake**

A pancake of 25-ft diameter, 1 in thick, weighing 3,727 lb, containing 5,274 eggs, 92 gal of milk, 165 lb of corn flour and 14 gal of oil, was cooked by Derry Lynch and Dennis Thornton, assisted by Nick Cotterell, at Cheltenham, Eng., on Mar 3, 1987.

## **Longest Pastry**

The longest pastry in the world is the "record" pastry 1,683 ft 2½ in in length made by chefs at the Hyatt Regency Ravinia, Atlanta, Ga., on July 26, 1986.

## **Largest Paella**

The largest paella ever made was one with a diameter of 32 ft 9 in and a depth of 1 ft 5½ in built in the Plaza de Catalunya, Cornellà de Llobregat, Barcelona, Spain on June 24, 1984 for 15,000 people. It included 1,650 lb of meat and 660 lb of pimientos.

## **Largest Pies**

The largest apple pie ever baked was that by a TV Chef, Glynn Christian, in a 40 ft × 23 ft dish at Hewitts Farm, Chelshfield, Kent, England on Aug 25-27, 1982. Over 600 bushels of apples were included in the pie which weighed 30,115 lb.

The largest cherry pie weighed 7 tons and contained 4,950 lb of cherries. It measured 14 ft 4 in in diameter, 24 in in depth and was baked on the grounds of the Medusa Cement Corporation, Charlevoix, Mich., May 15, 1976, as part of the town's Bicentennial celebration.

The largest meat pie ever baked was called "The Chuck Wagon Gang's Chili Meat Pie" and weighed 13,362 9 lb. It was baked on Oct 17, 1986 at Odessa, Tex., in a half cylinder 20 ft long and 4 ft in diameter. Its crust alone weighed a ton.

The largest mince pie was one of 2,260 lb, measuring 20 × 5 ft, baked at Ashby-de-la-Zouch, Leicestershire, England, Oct 15, 1932.

A pecan pie 12½ ft in diameter, 4½ in thick and weighing 3,388 lb was baked in Albany, Georgia at the Pecan Festival there on Oct 18-19, 1986 and served approximately 2,000 people.



**LARGEST PECAN PIE:** 12½ ft in diameter, 4½ in thick and 3,388 lb in weight, this monster baked in Albany, Ga, for the Pecan Festival in Oct 1986 served 2,000 people.

### **Largest Pizza**

The largest pizza ever baked was one measuring 86 ft 7 in in diameter, hence 5,895 sq ft in area, completed by Marco Cagnazzo at Norwood Hypermarket, Johannesburg, S Africa on Mar 31, 1984.

### **Largest Popsicle**

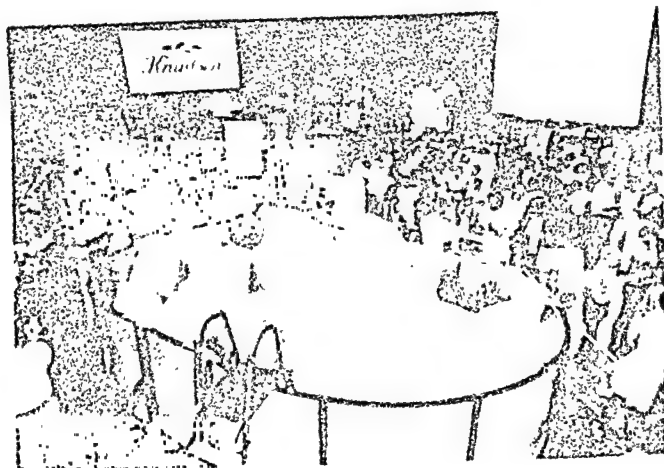
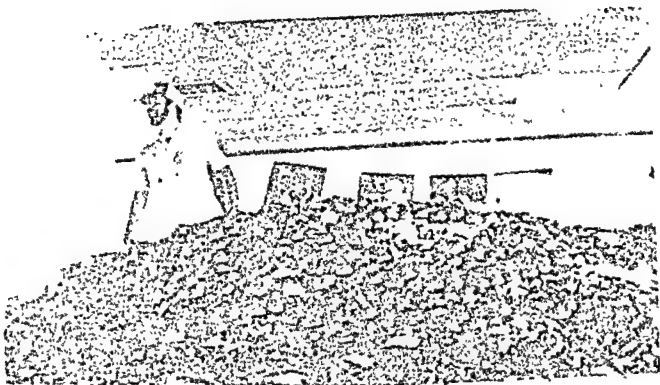
The largest iced lollipop on a stick was one of 5,750 lb, constructed for the Westside Assembly of God Church, Davenport, Iowa, Sept 7, 1975.

### **Largest Potato Chip**

Charles Chip Inc of Mountville, Pa, produced chips 4 × 7 in from outsize potatoes in Feb 1977

### **Largest Salad**

A 28-ton salad made by 30 people on Apr 16, 1983, in a circular swimming pool in Belle Glade, Fla, had to be seasoned with 112 gallons of dressing. The 4-ft-deep salad included 36,000 heads of lettuce (4 varieties) and Chinese cabbage, 300 lb of carrots, 400 lb of red radishes, 120 lb of white radishes, 250 lb of celery, and 180 lb of



$\mathbf{A}(\mathbf{r}) = \frac{1}{4\pi} \left( \frac{1}{r} + \frac{1}{2} \frac{r^2}{R^2} \right) \mathbf{A}_0$

tomatoes, but no onions. It was served at the 1983 Black Gold Jubilee with catfish on Saturday and at a barbecue on Sunday.

### **Largest Salami**

The longest salami on record was one 58 ft 9 in long with a circumference of 20¼ in, weighing 863.5 lb, made by Kutztown Bologna Co, Kutztown, Pa, on August 21, 1986.

### **Longest Sausage**

The longest sausage ever made (pork) was in one continuous linked chain stretching 46,760 ft (8.856 mi) and placed on Sept 23, 1983 on 16 stainless steel racks of the maker, M&M Meat Shops of Kitchener, Ont, Canada. Total weight was 17,484 lb.

A single sausage 5,917 ft in length was cooked on a grill in Barcelona, Spain on Sept 22, 1986. (See page 355.)

### **Strawberry Bowl**

A "bowl" of 860 lb of strawberries was filled at Parkland HS, Sidney, B.C., Canada, on Apr 29, 1986.

### **Largest Sundae**

The most gigantic ice cream sundae, weighing 33,616.75 lb, was constructed July 28, 1985 by the Knudsen Corp of LA and Smucker's of Ohio at the Disneyland Hotel in Anaheim, Calif. The 10-ft-tall, 30-million-calorie sundae included 26,020 lb of ice cream, 7,521.75 lb of topping, and 75 lb of whipped cream. The topping included 2,287 lb of chocolate fudge, 1,706 lb of butterscotch, 1,732 lb of caramel, as well as strawberry, pineapple and cherry syrup. Fork lifts and ladders were used to stack the ice cream blocks.

### **Largest Dish**

The largest single dish is roasted camel, prepared occasionally for Bedouin wedding feasts. Cooked eggs are stuffed in fish, the fish stuffed in cooked chicken, the chickens stuffed into a roasted sheep carcass and the sheep stuffed into a whole camel.

### **Longest Banana Split**

The longest banana split ever made was one 4 mi in length made by the Zeta Beta Tau fraternity of Bowling Green State Univ, Ohio, on Aug 25, 1985.

### **Mashed Potatoes**

A single serving of mashed potatoes weighing 18,260 lb was prepared from instant mashed potato flakes and water in a ready-mix concrete truck and poured into a platform 16 ft by 16 ft (256 sq ft) in Grand Forks, N Dakota before a Potato Bowl football game on Sept 4, 1982. (No further claims in this category will be considered.)

# MASS COMMUNICATIONS AND TRANSPORTATION

## Merchant Shipping

The world total of merchant shipping (excluding vessels of less than 100 tons gross, sailing vessels and barges) was 76,395 vessels of 416,268,534 tons gross on July 1, 1985. The largest merchant fleet as of mid-1985 was under the flag of Liberia with 1,808 ships of 58,179,717 tons gross.

## Largest and Busiest Ports

Physically, the largest port is the Port of NY and NJ. The port has a navigable waterfront of 755 miles (460 miles in NY State and 295 miles in NJ) stretching over 92 sq mi. A total of 261 general cargo berths and 130 other piers gives a total berthing capacity of 391 ships at one time. The total warehousing floor space is 18,400,000 sq ft (422.4 acres).

The world's busiest port and largest artificial harbor is the Rotterdam-Europoort in the Netherlands, which covers 38 sq mi with 76 mi of quays. It handled 31,457 seagoing vessels carrying a total of 251 million metric tons of seagoing cargo, and about 182,000 barges, in 1985. It is able to handle 310 seagoing vessels simultaneously, of up to 318,000 metric tons and 72 ft draught.

## Airlines

The country with the busiest airlines system is the US, where 277,182,916,000 revenue passenger miles were flown on the larger US certified air carriers in domestic operations in 1985. This was equivalent to an annual trip of 1,168 miles for every inhabitant of the US.

The longest airline ticket was one 39 ft 4½ in long issued for \$4,500 to M Bruno Leunen of Brussels, Belgium in Dec 1984 for a 53,203-mi air trip on 80 airlines involving 109 stopovers.

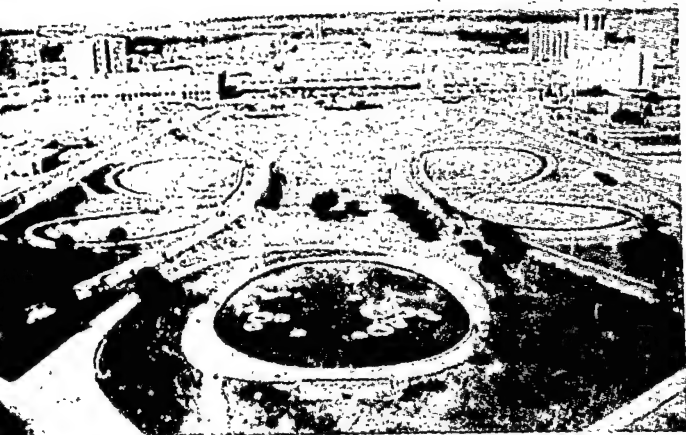
## Railroads

The country with the greatest length of railroad is the US, with 184,235 miles of track on Jan 1, 1985

## Roads and Traffic

The country with the greatest length of road is the US (50 states), with 3,891,781 mi of graded roads on Jan 1, 1985.

The highest traffic volume of any point is at East Los Angeles, where there is an interchange of the Santa Ana, Pomona, Golden State, Hollywood, San Bernardino and Santa Monica Freeways with a 24-hour average on weekdays of 522,020 vehicles in 1986—363 per min. The most heavily traveled stretch of road is Route 101 at its



**WIDEST STREET:** Brasilia, the capital of Brazil, built in 1960, has streets laid out with room to spare. The widest is the Monumental Axis, which has 6 lanes, 3 going in one direction and 200 yards away 3 parallel lanes going in the opposite direction. In between are official buildings, parks and loops leading to crossroads as seen here. (*Duncan Rabim/Daily Telegraph*)

junction with Route 405 near Encino, Calif, with a weekday volume of 288,000 vehicles.

The place with the highest traffic density is Hong Kong. By Jan 1, 1984, there were 302,118 motor vehicles on 778.9 mi of serviceable roads giving a density of 4.53 yd per vehicle.

### Widest, Narrowest and Shortest Streets

The widest street is the Monumental Axis, running for 1½ miles from the Municipal Plaza to the Plaza of the Three Powers in Brasilia, the capital of Brazil. The 6-lane boulevard was opened in Apr 1960 and is 273.4 yd wide.

The Bay Bridge Toll Plaza has 23 lanes (17 westbound) serving San Francisco and Oakland.

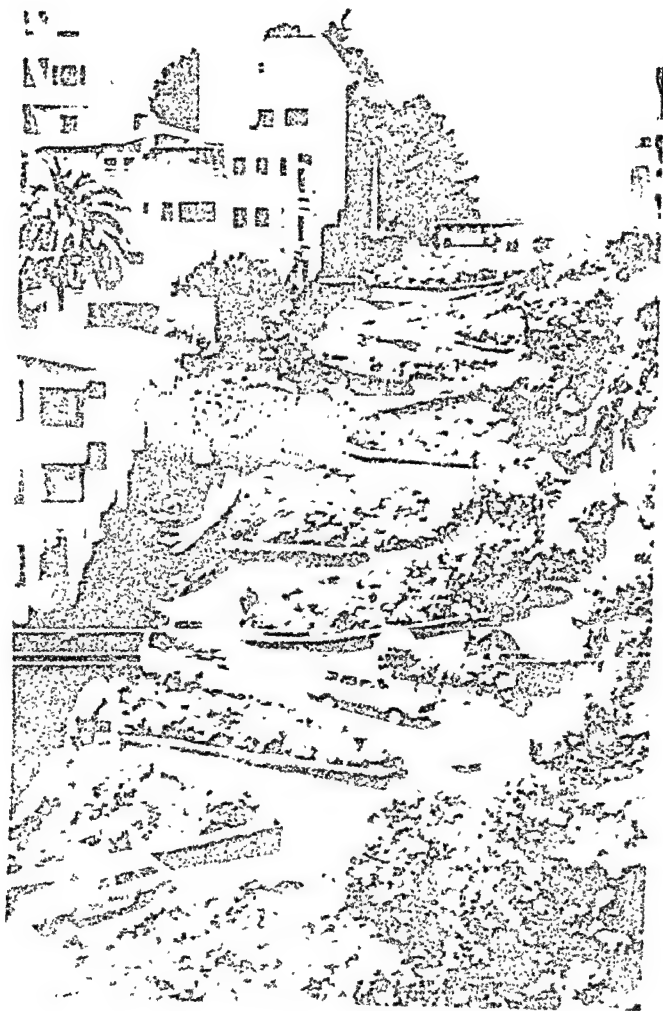
The title of "The Shortest Street in the World" has been claimed since 1907 by McKinley St in Bellefontaine, Ohio, which is built of vitrified brick and measures 30 ft in length. This title has been disputed by Bacup, Lancashire, Eng where "Elgin Street" by the old market measures 17 ft 0 in, but is not "carriageable."

### Steepest and Crookedest Streets

The steepest streets are Filbert St, Russian Hill and 22nd St, Dolores Heights, San Francisco, with gradients of 31.5° or a rise of 1 ft for every 3.17 ft.

Lombard Street in San Francisco between Hyde and Leavenworth has 8 consecutive 90-degree turns of 20-ft radius as it descends steeply one way.







**STEEPEST STREET?:** Baldwin St in Dunedin, New Zealand, claims the title with a maximum gradient of 1 in 1,266 representing an angle of over 38°. San Francisco's Russian Hill and Dolores Heights claim only 31.5°.

The world's narrowest street is in the village of Ripatransone in the Marche region of Italy. It is called Vico della Virilità (Virility Alley) and is 16.9 in wide.

## Longest Highways

The longest motorable road is the Pan-American Highway which stretches from northwest Alaska to Santiago, Chile, thence goes eastward to Buenos Aires, Argentina and terminates in Brasilia, Brazil. There remains a gap of 250 miles, known as the Tapon del Darién in Panama, and the Atrato Swamp in Colombia.

The longest Interstate Highway in the US is Route 90 which goes 3,087.65 mi from Boston to Seattle.

## Lowest Road

The lowest road is that along the Israeli shores of the Dead Sea, 1,290 ft below sea level. The lowest pass is the Rock Reef Pass in Everglades National Park, Fla, which is 3 ft above sea level.

## Inland Waterways

The country with the greatest length of inland waterways is Finland. The total length of navigable lakes and rivers is about 31,000 miles.

## Drivers' Licenses

Regular drivers' licenses are issued after a driver education course only in 11 states. Issue restricted juvenile licenses.

The easiest test for a driver's license is given in Egypt, where the ability to drive 6 meters (19.7 ft) forward and 6 meters in reverse has been deemed sufficient. In 1979 it was reported that accurate reversing between 2 rubber traffic cones had been added, but this soon led to the substitution of white lines when too many cones were destroyed.

## Worst Driver

It was reported that a 75-year-old *male* driver received 10 traffic tickets, drove on the wrong side of the road four times, committed four hit-and-run offenses and caused six accidents, all within 20 minutes, in McKinney, Tex, on Oct 15, 1966.

## Most Durable Driver

The Goodyear Tire and Rubber Co test driver Weldon C. Kocich drove 3,031,577 mi from Feb 5, 1953 to July 20, 1984, so averaging 96,345 mi per year.

## Oldest Driver

Roy M. Rawlins (b July 10, 1870) of Stockton, Calif was warned for driving at 95 mph in a 55-mph zone in June 1974. On Aug 25, 1974, he was awarded a Calif State license valid until 1978, but he died on July 9, 1975, one day short of his 105th birthday. Mrs Maude Tull of Inglewood, Calif, who began driving after her husband's death, when she was aged 91, was issued a renewal of her license on Feb 5, 1976, then aged 104.

Walter Herbert Weake of England drove for 75 years without ever having an accident. He began driving in 1894 and drove daily until his death, at age 91, in 1969.

## Most Failures on Learner's Test

The record for persistence in taking and failing a test for a driver's license is held by Mrs Miriam Hargrave (b Apr 3, 1908) of Wakefield, Yorkshire, England, who failed her 39th driving test in 8 years on Apr 29, 1970, when she "crashed" through a set of red lights. She finally passed her 40th driving test on Aug 3, 1970. She spent \$720 on 212 driving lessons and could no longer afford to buy a car. In 1978, she was reported to dislike right-hand turns.

Mrs Fannie Turner (b 1903) of Little Rock, Ark, passed her *written* test for a driver's license on her 104th attempt in Oct 1978.

## Telephones

There were approximately 285,723,398 telephones in the world on Jan 1, 1984, it was estimated by the American Telephone and Telegraph Co. The country with the greatest number was the US with 114,349,000 (about the same number as in all of Europe), equivalent to 483 for every 1,000 people.

The greatest total of calls made in any country is in the US, with 434,569 million in 1984 (1,837 calls per person).

The city with most telephones is NYC, which had 5,808,145 (821 per 1,000 people) as of Jan 1, 1985. In 1985, Washington, DC, reached the record of 1,730 telephones per 1,000 people.

Put on sale in London May 1.

## EARLIEST

### HIGHEST PRICE (TENDER)

### HIGHEST PRICE (AUCTION)

### HIGHEST PRICE (ERROR)

### LARGEST PHILATELIC PURCHASE

### LARGEST (SPECIAL PURPOSE) (STANDARD POSTAGE)

### SMALLEST HIGHEST DENOMINATION LOWEST DENOMINATION

### RAREST

\$1 million

\$850,000  
\$935,000 (with buyer's  
premium)

\$864,386

\$11,000,000

$9\frac{1}{4} \times 2\frac{3}{4}$  in

$6.3 \times 4.33$  in  
 $0.31 \times 0.37$  in  
£100 (then \$500)

3,000 pengö of Hungary

Unique examples include

1 penny Black of Great Britain. Queen Victoria. 68,158,080 printed. Available for pre-payment of postage on May 6, 1840.

5 cent Blue Alexandria US cover, Nov 25, 1846 by George Normann *via* David Feldmans of Geneva on May 9, 1981.

British Guiana 1¢ black on magenta provisional postmarked '4 Ap.. 1856' by Irvin R. Weinberg syndicate to anonymous collector at Waldorf-Astoria, NYC Apr 5, 1980.

First issue (1851) of German state of Baden, 9 Kreuzer, printed in error on blue-green paper intended for 6 Kreuzer, instead of dull rose. Only 3 examples known. One sold at auction for \$864,386 on Mar 16, 1985 in Wiesbaden, W Germany.

Marc Haas collection of 3,000 US postal and pre-postal covers to 1869 by Stanley Gibbons International Ltd of London in Aug 1979.

Express Delivery of China, 1913.

Marshall Islands 75 cents issued Oct 30, 1979.

10 cent and 1 peso Colombian State of Bolivar, 1863-6.

Red and black, George V, of Kenya, 1925-7.

Issued 1946 when 150 million million pengö =  $1p \ 1.6 \times 10^{-14} = 1$  US penny.

British Guiana (now Guyana) 1 cent black on magenta of 1856 (see above); Swedish 3 skilling banco yellow color error of 1855.

Gold Coast provisional of 1885 and US postmaster stamps from Boscawen, New Hampshire, and Lockport, NY.

## Largest Switchboard

The world's biggest switchboard is that in the Pentagon, Wash, DC, with 25,000 lines and an annual phone bill of \$8.7 million.

## Longest Telephone Cable

The longest submarine telephone cable is the Commonwealth Pacific Cable (COMPAC), which runs for 9,340 mi from Sydney, Australia *via* Norfolk Island, Fiji, and Hawaii to Port Alberni, Canada.

## Postal Services

The country with the largest mail is the US, whose people posted 140.1 billion letters and packages in 1985. The US Postal Service then employed 744,490 people with the world's largest vehicle fleet—200,811 cars and trucks.

The US also takes first place in the average number of letters which each person mails during one year. The figure was 589 in 1985.

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## 5. EDUCATION

### Universities

The Sumerians had scribal schools soon after 3500 bc. The oldest existing educational institution is the University of Karuccin, founded in 859 AD in Fez, Morocco. The University of Bologna (Italy) was founded in 1088.

The university with the greatest enrollment in the world is the State University of New York, which had 156,175 students enrolled in 1984–85. Its oldest college, at Potsdam, NY, was founded in 1816.

Bids for building the \$3.4-billion University of Riyadh, Saudi Arabia, were accepted in June 1978. The University will house 15,000 families and have its own mass transportation system.

The largest existing university building is the M. V. Lomonosov State University on the Lenin Hills, south of Moscow. It stands 787.4 ft tall, has 32 stories and 40,000 rooms. It was constructed in 1949–53.

The most northerly university is Inupiat University of the Arctic at Barrow, Alaska on Lat 71°16'N. Eskimo subjects are featured in the curriculum.

### Youngest Professors

The youngest at which anybody has been elected to a chair (full professorship) in a university is 19, in the case of Colin MacLaurin (1698–1746), who was admitted to Marischal College, Aberdeen, Scotland as Professor of Mathematics on Sept 30, 1717. In 1725 he was made Professor of Mathematics at Edinburgh University on the recommendation of Sir Isaac Newton, who was a professor at Cambridge, aged 26.

In July 1967, Dr Harvey Martin Friedman, PhD (b Sept 23, 1948)

was appointed Assistant Professor of Mathematics at Stanford University, Calif, on Sept 1, 1967, just 3 weeks before his 19th birthday.

### Most Durable Professors

Dr Joel Hildebrand (1881-1983), Professor Emeritus of Physical Chemistry at the University of California, Berkeley, first became an Assistant Professor in 1913, and 68 years later, in 1981 published his 275th research paper.

### Youngest Undergraduates

The most extreme recorded case of undergraduate juvenility was that of William Thomson (1824-1907), later Lord Kelvin, who entered Glasgow University aged 10 years 4 months in Oct 1834, and matriculated on Nov 14, 1834.

Dr. Merrill Kenneth Wolf (b Aug 28, 1931) of Cleveland, O, took his B.A. in music from Yale Univ in Sept 1945 in the month of his 14th birthday.

Ruth Lawrence (b 1971) of Huddersfield, W Yorkshire, Eng, was accepted for entrance to Oxford at the age of 12, and graduated two years later (July 4, 1985) with a first class degree, top of 191 entrants.

Jay Luo of Garden City, Mich (b Apr 4, 1970) graduated from Boise State Univ, Idaho, with a B S degree in math *cum laude* on May 16, 1982, at the age of 12 years 42 days.

### Youngest Doctorate

Carl Witte of Lochau, Germany was made a doctor of philosophy when age 12 on Apr 13, 1814, at the Univ of Giessen, Germany.

The youngest to receive a Doctor of Medicine degree is Avi Ben-Abraham (b Nov 18, 1957, Kfar-Saba, Israel) who graduated with his M D *summa cum laude* on Mar 4, 1976 from the Univ of Perugia, Italy, at the age of 18 years 3 months.

### Most Graduates in Immediate Family

Mr & Mrs Albert Kunz of Bloomington, Ind, saw all their 8 sons and 5 daughters graduate from Indiana Univ between 1932 and 1956.

### Largest School

South Point High School, Calcutta, India, had an enrollment of 12,350 regular students in 1983-84.

### Most Schools Attended

The documented record for the greatest number of schools attended by a pupil is 265 by Wilma Williams, now Mrs R. J. Horton, from 1933 to 1943 when her parents were in show business in the US.

### Lectures and Speakers

Bob Jones of Wellington, New Zealand, in 1980, addressed a seminar of 1,048 people in Auckland on property. He received US \$140,000 (NZ \$200,000) equal to \$11,666 per hour. In March 1981, it was reported that both Johnny Carson and Bob Hope commanded fees of \$40,000 an appearance.

## 6. RELIGIONS

### Oldest Religious Custom

Human burial, which has religious connotations, has been known from c. 60,000 bc among *Homo sapiens neanderthalensis* in the Shanidar cave, N Iraq. The earliest named prophet was Zoroaster (Zarathustra) dated to c. 1600 bc. He has 250,000 followers today.

### Largest Religious Membership

Religious statistics are necessarily only approximate. The test of adherence to a religion varies widely in rigor, while many individuals, particularly in the East, belong to two or more religions.

Christianity is the leading religion, with some 1.62 billion adherents in 1986. The Vatican statistics office reported that in 1986 there were 900,545,000 Roman Catholics. The largest non-Christian religion is Islam (Muslim) with about 560 million followers.

### Largest Clergy

The largest religious organization is the Roman Catholic Church, with 146 cardinals, 730 archbishops, 3,102 bishops, 405,959 priests and 926,335 nuns in 1986. There are about 420,000 churches.

### World Jewry

The total of world Jewry was estimated to number 16,000,000 in 1987. The highest concentration was in the US, with 5,834,650 of whom 1,742,500 are in the NY area. The total in Israel is 3,537,000. The total in Tokyo is only 750.

### Largest Temple

The largest religious building ever constructed is Angkor Wat (City Temple), enclosing 402 acres, in Cambodia (now Kampuchea). It was built to the God Vishnu by the Khmer King Suryavarman II in the period 1113–1150. Its curtain wall measures 1,400 × 1,400 yd and its population, before it was abandoned in 1432, was at times 80,000. The whole complex of 72 major monuments, begun c. 900 AD, extends over 15 × 5 miles.

The largest Buddhist temple is Borobudur, near Jogjakarta, Indonesia, built in the 8th century. It is 103 ft tall and 403 ft square.

The largest Mormon temple is in Salt Lake City, Utah, completed in Apr 1983, with a floor area of 253,015 sq ft. At the adjoining Tabernacle, the choir on Feb 15, 1987 broadcast its 3,000th consecutive weekly radio program.

### Largest Synagogue

The largest synagogue is the Temple Emanu-El on Fifth Ave at 65th St, NYC. The temple, completed in Sept 1929, has a frontage of 150 ft on Fifth Ave and 253 ft on 65th St. The sanctuary proper can accommodate 2,500 people, and the adjoining Beth-El Chapel seats 350. When all the facilities are in use, more than 6,000 people can be accommodated.

## Largest Mosque

The largest mosque ever built was the now ruined al-Malawiya mosque of al-Mutawakil in Samarra, Iraq, built in 842-852 AD and measuring 401,408 sq ft (9.21 acres) with dimensions of 784 × 512 ft.

The largest mosque is the Merdeka Mosque in Djakarta, Indonesia, which was begun in 1962. The cupola spans 147.6 ft in diameter and the capacity is in excess of 50,000 people.

## Smallest Church

The smallest church is the Union Church at Wiscasset, Maine, with a floor area of 7 ft × 4½ ft.

## Largest Church

The largest church is the basilica of St Peter, built between 1492 and 1612 in Vatican City, Rome. Its length, measured from the apse, is 611 ft 4 in. Its area is 162,990 sq ft. The inner diameter of the famous dome is 137 ft 9 in and its center is 390 ft 5 in high. The external height is 457 ft 9 in.

The elliptical Basilique de St Pie X at Lourdes, France, completed in 1957 at a cost of \$5,600,000, has a capacity of 20,000 under its giant span arches and a length of 656 ft.

The crypt of the underground Civil War Memorial Church in the Guadarrama Mountains, 28 miles from Madrid, Spain, is 853 ft in length. It took 21 years (1937-58) to build, at a reported cost of \$392 million and is surmounted by a cross 492 ft tall.

## Largest and Smallest Cathedrals

The largest is the cathedral church of the Episcopal Diocese of NY, St John the Divine, with a floor area of 121,000 sq ft and a volume of 16,822,000 cu ft. The cornerstone was laid on Dec 27, 1892, and work on the Gothic building was stopped in 1941, then restarted in earnest in July 1979. In NY it is referred to as "Saint John the Unfinished." The nave is the longest in the world, 601 ft in length, with a vaulting 124 ft in height.

The cathedral covering the largest area is that of Santa María de la Sede in Seville, Spain. It was built in Spanish Gothic style between 1402 and 1519 and is 414 ft long, 271 ft wide and 100 ft high to the vault of the nave.

The smallest church in the world designated as a cathedral is that of the Christ Catholic Church, Highlandville, Mo. Consecrated in July 1983, it measures 14 × 17 ft and has seating for 18 people.

## Tallest Spires

The tallest *cathedral* spire is on the Protestant Cathedral of Ulm in Germany. The building is early Gothic and was begun in 1377. The tower, in the center of the west façade, was not finally completed until 1890 and is 528 ft high.

The tallest *church* spire is that of the Chicago Temple of the First Methodist Church on Clark St, Chicago. The building consists of a 22-story skyscraper (erected in 1924) surmounted by a parsonage at 330 ft, a "Sky Chapel" at 400 ft and a steeple cross at 568 ft above street level.



## Minarets and Pagodas

The tallest minarets are the four of 450 ft 9 in being built for a new mosque in Shah Alam, Selangor, Malaysia. The tallest free-standing stone tower is the Qutb Minar, south of New Delhi, India, built in 1194 to a height of 238 ft.

The tallest pagoda is the Phra Pathom Chedi at Nakhon Pathom, Thailand, which was built for King Mongkut in 1853–70. It rises to 377 ft.

The oldest pagoda in China is Sung-Yo Ssu in Honan, built with 15 12-sided stories in 523 AD, though the 326-ft-tall Shwedagon Pagoda, Rangoon, Burma is built on the site of a 27-ft-tall pagoda dating to 585 BC.

## Most Valuable Sacred Object

The sacred object of the highest intrinsic value is the 15th-century gold Buddha in the Temple of Three Friends in Bangkok, Thailand. It is 10 ft tall and weighs an estimated 6 tons. At the current value of \$325 per fine ounce, its value has been calculated at \$62.4 million for the gold alone. The gold under the plaster exterior was only found in 1954.

## Biggest Demonstrations

A figure of 2,700,000 was published from China for the demonstration against the USSR in Shanghai Apr 3–4, 1969, following border clashes, and one of 10 million for the May Day celebrations of 1963 in Peking.

## Largest Crowd

The greatest recorded number of human beings assembled with a common purpose was an estimated 12,700,000 at the Hindu feast of Kumbh-Mela, which was held at the confluence of the Yamuna (formerly called the Jumna), the Ganges and the invisible "Sarasvati" at Allahabad, Uttar Pradesh, India, on Jan 19, 1977. The holiest time during this holiest day since 1833 was during the planetary alignment between 9:28 and 9:40 a.m., during which only 200,000 achieved immersion to wash away the sins of a lifetime.

## Popes, Cardinals and Bishops

LONGEST PAPAL REIGN: Pius IX, Giovanni Maria Mastai-Ferretti (1848–1878), 31 years 236 days

SHORTEST PAPAL REIGN: Stephan II (752), 2 days

LONGEST-LIVED POPE: St Agatho (d 681), ?106 years; Leo XIII, Gioacchino Pecci (1810–1903), 93 years 140 days

YOUNGEST ELECTED POPE: Benedict IX—Theophylact (c 1020–1056) in 1032, at 11 or 12 years—3 terms as Pope

LAST MARRIED POPE (before celibacy rule): Adrian II (867–872)

LAST POPE WITH CHILDREN: Alexander VI—Rodrigo Borgia (1431–1503), father of six; elected 1492

SLOWEST ELECTION: Gregory X—Teobaldo Visconti, 31 months, Feb 1269–Sept 1, 1271

FASTEST ELECTION: Julius II, on first ballot, Oct 21, 1503

LAST NON-CARDINAL POPE: Urban VI—Bartolomeo Prignano (1318–89), Archbishop of Bari, Apr 8, 1378  
SLOWEST CANONIZATION: St Leo III, over span of 857 years (816–1673)  
OLDEST CARDINAL: Georgio da Costa (b Portugal, 1406, d Rome Sept 18, 1508), aged 102 years  
OLDEST LIVING CARDINAL: Pietro Parente (b Feb 16, 1891), had 93rd birthday 1984  
YOUNGEST CARDINAL: Luis Antonio de Bourbon (b July 25, 1727) elected Dec 19, 1735, aged 8 years 137 days  
YOUNGEST LIVING CARDINAL: Alfonso Lopez Trujillo of Colombia (b Nov 18, 1935) appointed when aged 47 years 76 days  
LONGEST-SERVING CARDINAL: Cardinal Duke of York, grandson of James VII of Scotland and II of England (1747–1807), 60 years 10 days  
LONGEST-SERVING BISHOP: Bishop Louis Francois de la Baume de Suze (1603–90) 76 years 273 days from Dec 6, 1613

## Non-Italian Popes

The current Pope John Paul II, elected Oct 16, 1978 (b Karol Wojtyla, May 18, 1920, at Wadowice, near Krakow, Poland) is the first non-Italian Pope since 1522.

## Saints

There are 1,848 "registered" saints (including 60 St Johns), of whom 628 are Italians, 576 French and 271 from the British Isles. The first US-born saint is Mother Elizabeth Ann Bayley Seton (1774–1821) who was canonized Sept 14, 1975. The total includes 79 Popes.

The shortest interval that has elapsed between the death of a saint and his canonization was in the case of St Anthony of Padua, Italy, who died on June 13, 1231 and was canonized 352 days later on May 30, 1232.

The other extreme is represented by Pope St Leo III who died on June 12, 816, and was made a saint in 1673—857 years later.

## Largest Funeral

The funeral of C. N. Annadurai (d Feb 3, 1969) Madras (India) Chief Minister was, according to some press reports, attended by 15 million. The longest funeral was probably that of Vice Admiral Viscount Nelson on Jan 9, 1806. Ticket holders were seated in St Paul's Cathedral, London by 8:30 AM. Many were unable to leave until after 9 PM.

The queue at the grave of the *chansonier* and guitarist Vladimir Visotsky (d July 28, 1980) stretched 6.2 mi.

## WORST ACCIDENTS & DISASTERS IN THE WORLD

	<i>Deaths</i>		
Pandemic	75,000,000	Eurasia: The Black Death (bubonic, pneumonic and septicaemic plague)	1347-51
Genocide	c. 35,000,000	Mongol extermination of Chinese peasantry	1311-40
Famine	c. 30,000,000 <sup>1</sup>	Northern China (revealed May 1981)	1959-61
Influenza	21,640,000	Worldwide: Influenza	Apr-Nov 1918
Earthquake	1,100,000	Near East and E. Mediterranean	c. July 1201
Circular Storm	1,000,000 <sup>2</sup>	Ganges Delta isles, Bang- ladesh	Nov 12-13, 1970
Flood	900,000	Yellow (Hwang-ho) River, China	Oct 1877
Landslide	180,000	Kansu Province, China	Dec 16, 1920
Atomic Bomb	141,000	Hiroshima, Japan	Aug 6, 1945
Conventional Bombing	c. 140,000 <sup>3</sup>	Tokyo, Japan	Mar 10, 1945
Volcanic Eruption	92,000	Tambora Sumbawa, Indonesia	Apr 5-7, 1815
Avalanche (mud)	c. 23,000	Nevado Del Ruiz, Colombia	Nov 13, 1985
Avalanche (ice and debris)	c. 18,000 <sup>4</sup>	Yungay, Huascaran Mt., Peru	May 31, 1970
Marine (single ship)	c. 7,700	<i>Wilhelm Gustloff</i> (25,484 tons) torpedoed off Dan- zig by USSR submarine S-13	Jan 30, 1945
Dam Burst	c. 5,000 <sup>14</sup>	Manchu River Dam, Morvi, Gujarat, India	Aug 11, 1979
Panic	c. 4,000 <sup>5</sup>	Chungking, China (air raid shelter)	c. June 8, 1941
Smog	2,850	London (Eng) fog	Dec 5-13, 1951
Tunneling (Silicosis)	c. 2,500	Hawk's Nest hydroelectric tunnel, W Va	1931-35
Industrial (Chemical)	2,352 <sup>11</sup>	Bhopal, India at Union Carbide plant (plus c. 200,000 injured)	Dec 2-3, 1984
Explosion	1,963 <sup>6</sup>	Halifax, Nova Scotia, Canada	Dec 6, 1917
Fire (single building)	1,670 <sup>7</sup>	The Theatre, Canton, China	May 1845

<i>(continued)</i>	<i>Deaths</i>		
Mining	1,572 <sup>8</sup>	Honkeiko Colliery, China (coal dust explosion)	Apr 26, 1942
Riot	c. 1,200	NYC (anticonscription riots)	July 13-16, 1863
Road	c. 1,100 <sup>9</sup>	Gasoline tanker explosion inside Salang Tunnel, Afghanistan	Nov 2 or 3, 1982
Mass Suicide	913	People's Temple Cult by cyanide, Jonestown, Guyana	Nov 18, 1978
Crocodiles (disputed)	c. 900	Japanese soldiers, Ramree Island, Burma	Feb 19-20, 1945
Fireworks Show <sup>13</sup>	>800	Dauphin's wedding, Seine, Paris	May 16, 1770
Railroad	>800	Bagmati River, Bihar State, India	June 6, 1981
Tornado	689	South Central States, US (3 hours)	March 18, 1925
Aircraft (Civil)	583	KLM-Pan Am Boeing 747 ground crash, Tenerife, Canary Islands (Single plane: Japan Airlines 747 in central Japan, 520 killed Aug 12, 1985.)	March 27, 1977
Man-Eating Animal	436	Champawat district, India, tigress shot by Col Jim Corbett	1907
Terrorism	329	Bomb aboard Air India Boeing 747, crashed into Atlantic south of Ireland. Sikh extremists suspected.	June 23, 1985
Bacteriological and Chemical	c. 300	Novosibirsk B&CW plant, USSR	Apr-May 1979

*Notes* 1.—It has been estimated that more than 5 million died in the post-World War I famine of 1920-1 in the USSR. The USSR government in July 1923 informed Mr (later President) Herbert Hoover that the ARA (American Relief Administration) had since August 1921 saved 20 million lives from famine and famine-related diseases.

2.—The figure published in 1972 for the Bangladeshi disaster was from Dr Afzal, Principal Scientific Officer of the Atomic Energy Authority Centre, Dacca. One report asserted that less than half of the population of the 4 islands of Bhola, Charjabbar, Hatia and Ramagati (1961 Census 1.4 million) survived. The most damaging hurricane reported was Hurricane Frederic in 1979 with an estimated loss of \$2,300 billion.

3.—The number of civilians killed by the bombing of Germany has been put variously at 593,000 and "over 635,000." Total Japanese fatalities in World War II were 600,000 (conventional) and 220,000 (nuclear).

4.—This avalanche occurred when an earthquake broke off the north peak of Huascaran; Peru's highest mountain, 22,205 ft high. It scooped up more ice and snow from the glacier below, then dirt and boulders, in all about 100 million tons, which fell upon Yungay. The earthquake killed about 60,000 people in all. A total of 10,000 Austrian and Italian troops

<i>(continued)</i>	<i>Deaths</i>		
Hall	246	Moradabad, Uttar Pradesh, India	Apr 20, 1888
Truck Bomb	243	US Marine Barracks, Beirut, Lebanon	Oct 23, 1983
Submarine	130	<i>Le Surcouf</i> rammed in Caribbean	Feb 18, 1942
Offshore Oil Plant	123	Alexander L. Kielland "Hotel," North Sea	March 27, 1980
Helicopter	54	Israeli military "Sea Stallion," West Bank	May 10, 1977
Ski Lift (Cablecar)	42	Cavalese resort, Northern Italy	March 9, 1976
Mountaineering	40 <sup>10</sup>	USSR expedition on Mt Everest	Dec 1952
Nuclear Reactor	31 <sup>12</sup>	Chernobyl No 4, Ukraine, USSR	Apr 26, 1986
Elevator	23	Vaal Reefs Gold Mine lift fell 1.2 miles	May 27, 1980
Lightning	21	Hut in Chinamasa Kraal near Umtali, Rhodesia (single bolt)	Dec 23, 1975
Yacht Racing	19	28th Fastnet Race, 23 boats sank or abandoned in Force 11 gale	Aug 13-15, 1979
Space	7	US Space Shuttle <i>Challenger</i>	Jan 28, 1986
Nuclear Waste Accident <sup>13</sup>	high but undisclosed	Venting of plutonium wastes, Kyshtym, USSR	c. Dec 1957

is reported to have been lost in the Dolomite valley of Northern Italy on Dec 13, 1916 in more than 100 avalanches. Some of the avalanches were triggered by gunfire.

5.—It was estimated that some 5,000 people were trampled to death in the stampede for free beer at the coronation celebration of Czar Nicholas II in Moscow in May 1896.

6.—Some sources maintain that the final death toll was over 3,000 on Dec 6-7.

7.—>200,000 killed in the sack of Moscow, freed by Tartars, May 1571. The worst-ever massacre in the history of the world. Dec 25, 1971. The worst disaster in the history of the world. Niteroi, Brazil, on Dec 17, 1961.

152 killed due to flooding in the Witwatersrand Gold Mining Co gold mine in 1909.

9.—Some estimates ran as high as 2,700 victims from monoxide asphyxiation when Soviet military sealed off both ends of a 1.7-mi long tunnel.

10.—According to Polish sources, not confirmed by the USSR. On Mt Fuji, Japan 23 died in a blizzard and avalanche on March 20, 1972.

11.—Final certified death toll obscured by litigation.

12.—Total death estimates vary from 200 to 600 by 2006 AD (per Ukrainian Health Minister) to 75,000 (per US transplant specialist).

13.—Panic following the fireworks show caused a crush of people at the narrow exit doors. The deaths were not directly due to fireworks.

14.—The dynamiting of a Yangtze Kiang dam at Huayuan Kow by the KMT during the Sino-Japanese war in 1938 is reputed to have resulted in 900,000 deaths.

15.—More than 30 small communities in a 460 sq mi area eliminated from USSR maps since 1958. Possibly an ammonium nitrate-hexone explosion.

# Human Achievements

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## 1. ENDURANCE AND ENDEAVOR

### TRAVEL AND EXPLORATION

#### Lunar Conquest

Neil Alden Armstrong (b Wapakoneta, Ohio, of Scottish-Irish-German ancestry, Aug 5, 1930), command pilot of the *Apollo XI* mission, became the first man to set foot on the moon on the Sea of Tranquillity at 02:56 and 15 sec AM GMT on July 21, 1969. He was followed out of the Lunar Module *Eagle* by Col Edwin Eugene Aldrin, Jr (b Glen Ridge, NJ, of Swedish, Dutch and British ancestry, Jan 20, 1930), while the Command Module named *Columbia* piloted by Lt-Col Michael Collins (b Rome, Italy, of Irish and pre-Revolutionary American ancestry, Oct 31, 1930) orbited above.

*Eagle* landed at 20:17 and 42 sec GMT July 20 and blasted off at 17:54 GMT on July 21, after a stay of 21 hours 36 min. The *Apollo XI* had blasted off from Cape Kennedy, Fla at 13:32 GMT July 16 and was a culmination of the US space program, which, at its peak, employed 376,600 people and attained in the year 1966-67 a peak budget of \$5,900 million.

There is evidence that Pavel Belgayev was the cosmonaut selected by the USSR for a manned lunar flight in *Zond 7* on Dec 9, 1968 (212 days before the *Apollo VIII* flight), but no launch took place.

#### Speed in Space

The fastest speed at which humans have traveled is 24,791 mph when the Command Module of *Apollo X* carrying Col (now Brig-Gen) Thomas Patten Stafford, USAF (b Weatherford, Okla, Sept 17, 1930), Cdr (now Capt) Eugene Andrew Cernan and Cdr (now Capt) John Watts Young, USN (b San Francisco, Sept 24, 1930) reached their maximum speed on their trans-earth return flight at an altitude of 400,000 ft on May 26, 1969.

The highest speed ever attained by a woman is 17,470 mph by Jr Lt (now Lt Col) Valentina Vladimirovna Tereshkova-Nikolayev (b Mar 6, 1937) during her 48-orbit flight in *Vostok VI* June 16-19, 1963. The highest speed ever achieved by a woman aircraft pilot is 1,669.89 mph by Svetlana Savitskaya (USSR), reported on June 2, 1975.

## Speed on Land

The highest speed ever claimed on land is an unofficial 739.666 mph or Mach 1.0106 in a one-way run by Stan Barrett (US) in the *Budweiser Rocket*, a rocket-engined 3-wheeled car at Edwards Air Force Base, Calif on Dec 17, 1979.

The official one-mile land speed record is 633.468 mph set by Richard Noble (b 1946) on Oct 4, 1983 over the Black Rock Desert, Nev, in his 17,000 thrust Rolls Royce Avon 302 jet-powered *Thrust 2*, designed by John Ackroyd.

The highest land speed recorded by a woman is 524.016 mph by Mrs Kitty O'Neil Hambleton (US), in the 48,000-hp rocket-powered 3-wheeled S.M.1 *Motivator* over the Alvard Desert, Ore, on Dec 6, 1976. Her official 2-way record was 512.710 mph and she probably touched 600 mph momentarily.

## Speed on Water

The highest speed ever achieved on water is an estimated 300 knots (345 mph) by Kenneth Peter Warby (b May 9, 1939) on the Blowering Dam Lake, NSW, Australia Nov 20, 1977, in his unlimited hydroplane *Spirit of Australia*. The official world water speed record is 319.627 mph, set Oct 8, 1978, by Warby on the Blowering Dam Lake.

The record for propeller-driven craft is 229.00 mph by Eddie Hill in the *Texan*, a Kurtis top-fuel hydro drag boat, on Sept 5, 1982 at Chowchilla, Calif.

The fastest woman on water is Mary Rife (US), who has driven a drag boat, *Proud Mary*, at more than 190 mph.

## Most Traveled Man

The most traveled living American is Parke G. Thompson of Akron, Ohio, whose blanket coverage of the nations and territories of the world lacks only the 4 Antarctic territories. In 1986, he managed to visit N Korea, which had previously been "impenetrable." He has visited every state of the US including 78 of the 87 metropolitan areas and 86 of the 100 biggest major cities; all but 2 of the Canadian provinces and their capitals; all of the states of Australia and their capitals; 14 of the Russian Soviet republics and their capitals and Siberia; 5 major cities in India; the major cities of China, 5 states of Malaysia; 7 of the United Arab Emirates, and even the most remote island in the world, Tristan da Cunha. His grand total is 304 countries and geographical areas out of 308. His choice for the "7 wonders of the modern world" are Tahiti, Antarctica, the Himalaya mountain region, Hong Kong, the south island of New Zealand, Rio de Janeiro and the Alps.

The most traveled child is George Chauncey Clouse (b Dec 6, 1979) of Indiana who had been to 114 countries before his sixth birthday.

The man who had more mileage in visiting more countries than anyone in his time was Jesse Hart Rosdail (1914-77) of Elmhurst, Ill, a 5th grade teacher. Of all the separately administered countries and territories listed in the *UN Population Report*, he had visited all excepting only N Korea and French Antarctic Territories. He estimated his mileage back-and-forth to visit 215 countries at 1,626,605 statute miles.

Giorgio Ricalto (b 1934) (Italy) has visited all 170 sovereign and non-sovereign territories except 4.

The most traveled man in the horseback era was probably the Methodist preacher Francis Asbury (b Birmingham, Eng), who traveled 264,000 mi in N America from 1771 to 1815, preaching 16,000 sermons.

### Fastest Round-the-World Trip

The fastest time for a round-the-world journey on scheduled flights for a circumnavigation is 44 hours 6 min by David I. Springsteen, 41, of Taplow, England from Los Angeles eastward via London, Bahrain, Singapore, Bangkok, Manila, Tokyo and Honolulu Jan 8-10, 1986 over a 23,068-mile route.

*The F.A.I. accepts any flight, taking off and landing at the same point, which is as long as the Tropic of Cancer (22,853,754 miles) as a circumnavigational flight.*

### North Pole Conquests

The claims of both of the two US Arctic explorers, Dr Frederick Albert Cook (1865-1940) and Rear Adm Robert Edwin Peary, USN (1856-1920), in reaching the North Pole are subject to positive proof.

The earliest indisputable attainment of the North Pole over the sea ice was at 3 p.m. (cst) on Apr 19, 1968, by Ralph Plaisted (US) and three companions after a 42-day trek in four snowmobiles. Their arrival was independently verified 18 hours later by a US Air Force weather aircraft. The sea bed is 13,410 ft below the North Pole.



**MOST TRAVELED MAN:** In back of Parke G. Thompson is the former palace of the Dalai Lama of Tibet, in Lhasa, the "forbidden city." Lhasa lost its title as the highest capital in the world at 12,087 ft (to La Paz, Bolivia) when Tibet was dominated by China and Lhasa was no longer the capital. Thompson has been to all the nooks and crannies of the globe, except the 4 Antarctic territories. He has even penetrated N Korea.



Dr Jean-Louis Etienne, 39, was the first to reach the Pole solo and without dogs, on May 11, 1986 after 63 days. On Apr 20, 1987 Fukashi Kazami, 36 of Tokyo reached the North Pole from Ward Hunt Island, northern Canada in 44 days having started on his 250 cc motorcycle on March 8.

Naomi Uemura (b 1941), the Japanese explorer and mountaineer, became the first person to reach the North Pole in a solo trek across the Arctic ice cap at 04:45 GMT May 1, 1978. He had traveled 450 miles, setting out on March 7 from Cape Edward, Ellesmere Island, in northern Canada. He averaged nearly 8 miles per day with his sled "Aurora" drawn by 17 huskies.

The first woman to set foot on the North Pole was Mrs Fran Phipps, wife of the Canadian bush pilot Weldy Phipps, Apr 5, 1971. Galina Aleksandrovna Lastovskaya (b 1941) and Lilia Vladislavovna Minina (b 1959) were crew members of the USSR atomic icebreaker *Arktika* which reached the Pole on Aug 17, 1977.

The Soviet scientist Dr Pavel A. Gordienko and 3 companions were arguably the first ever to stand on the exact point Lat 90° 00' N ( $\pm 300$  meters) on Apr 23, 1948.

## Arctic Crossing

The first crossing of the Arctic Sea ice was achieved by the British Trans-Arctic Expedition which left Point Barrow, Alaska, Feb 21, 1968, and arrived at the Seven Island Archipelago northeast of Spitzbergen 464 days later on May 29, 1969, after a haul of 2,920 statute miles and a drift of 700 miles, compared with a straight-line distance of 1,662 miles. The team was Wally Herbert (leader), 34, Maj Ken Hedges, 34, Allan Gill, 38, Dr Roy Koerner, 36 (glaciologist), and 40 huskies. This was the longest sustained (sled) journey ever made on polar pack ice and the first undisputed conquest of the North Pole by sled. Temperatures sank to  $-47^{\circ}$  F during the trek.

## South Pole Conquests

The first men to cross the Antarctic circle (Lat  $66^{\circ} 30'$  S) were the 193-crew of the *Resolution* (462 tons) under Capt James Cook (1728-79), the English navigator, and *Adventure* (336 tons) under Lt T. Furneaux, at  $39^{\circ}$  E, Jan 17, 1773.

The first person known to have sighted the Antarctic ice shelf was Capt. F. F. Bellinghausen (Russian) (1778-1852) on Jan 27, 1820 from the vessels *Vostok* and *Mirnyi*. The first person known to have sighted the mainland of the continent was Capt William Smith (1790-1847) and Master Edward Bransfield, of the British Royal Navy, in the brig *Williams*. They saw the peaks of Trinity Land 3 days later on Jan 30, 1820.

The South Pole (altitude 9,186 ft on ice and 336 ft bed rock) was first reached at 11 a.m. Dec 16, 1911, by a Norwegian party, led by Capt Roald Engebret Gravning Amundsen (1872-1928), after a 53-day march with dog sleds from the Bay of Whales, to which he had penetrated in the *Fram*. Subsequent calculations showed that Olav

Olavson Bjaaland (the last survivor, dying in June 1961, aged 88) and Helmer Hanssen probably passed within 400–600 meters of the exact pole. The other two party members were Sverre H. Hassell and Oskar Wisting.

The first woman to set foot on Antarctica was Mrs Karoline Mikkelsen on Feb 20, 1935. No woman stood on the South Pole until Nov 11, 1969, when Lois Jones, Eileen McSavenay, Jean Pearson, Terry Lee Tickhill (all US), Kay Lindsay (Australia) and Pam Young (New Zealand), arrived by air.

## Antarctic Crossing

The first surface crossing of the Antarctic continent was completed at 1:47 p.m. March 2, 1958, after a 2,158-mile trek lasting 99 days from Nov 24, 1957, from Shackleton Base to Scott Base via the Pole. The crossing party of 12 was led by Dr (now Sir) Vivian Ernest Fuchs (b Feb 11, 1908).

The 2,600-mile trans-Antarctic leg of the 1980-82 Trans-Globe Expedition was achieved in 66 days on Jan 11, 1981 having passed through the South Pole on Dec 23, 1980. The 3-man party on snowmobiles comprised Sir Ranulph Fiennes (b 1944), Oliver Shepard and Charles Burton.

## Polar Circumnavigation

Sir Ranulph Fiennes and Charles Burton of the British Trans-Globe Expedition traveled south from Greenwich, Eng (Sept 2, 1979), via the South Pole (Dec 17, 1980) and the North Pole (Apr 11, 1982), and back to Greenwich arriving after a 35,000 mile trek on Aug 29, 1982.

The only Arctic crossing achieved in a single season was that by Fiennes and Burton from Alert via the North Pole to the Greenland Sea in open snowmobiles.

## Longest Sled Journeys

The longest totally self-supporting polar sled journey was one of 1,080 mi across Kalaallit (Greenland) (W-E) June 18–Sept 5, 1934 by a British team led by Capt Martin Lindsay, with 49 dogs. A Ross Sea party of 10 in the Antarctic sledged over 2,000 mi in 300 days from May 6, 1975 during which time 3 died.

## First on Both North and South Poles

Dr. Albert P. Crary, a member of the party that made the first airplane landing at the North Pole on May 3, 1952, subsequently became Chief Scientist of the US Antarctic Research Program and led a scientific oversnow tractor traverse from McMurdo Sound on the coast to the South Pole, arriving at the South Pole on Feb 12, 1961. Crary thereby became the first person ever to have set foot at both North and South Poles, pre-empting David Porter by 18 years.

## Greatest Ocean Descent

The record ocean descent was achieved in the Challenger Deep of the Marianas Trench, 250 miles southwest of Guam, when the Swiss-built US Navy bathyscaphe *Trieste*, manned by Dr Jacques Piccard (b 1914) and Lt Donald Walsh, USN, reached the ocean bed

35,820 ft (6.78 miles) down, at 1:10 p.m. Jan 23, 1960. The pressure of the water was 16,883 lb per sq in (1,215.6 tons per sq ft), and the temperature 37.4°F. The descent required 4 hours 48 min and the ascent 3 hours 17 min.

## Deepest Salvage

The greatest depth at which salvage has been achieved is 16,500 ft by the bathyscaphe *Trieste II* (Lt Cdr Mel Bartels, USN) to attach cables to an "electronics package" on the sea bed 400 miles north of Hawaii, May 20, 1972.

The deepest salvage by robot was the recovery in July 1985 from the ocean floor off Ireland at 6,700 ft of 2 "black boxes" containing the flight recorders from the crashed Air-India 747 plane. The robot submarine "Scarab I" worked with a hydrophone and a side-scan radar "fish" towed by a surface ship.

## Salvage by Divers

The deepest salvage operation ever achieved with divers was on the wreck of HM Cruiser *Edinburgh* sunk on May 2, 1942, in the Barents Sea off northern Norway inside the Arctic Circle in 803 ft of water. Twelve divers dived on the wreck in pairs using a bell from the *Stephaniturm* (1,423 tons) over 32 days under the direction of former RN officer and project director Michael Stewart from Sept 17 to Oct 7, 1981. A total of 460 gold ingots was recovered and divided: \$26.3 million to the USSR, \$13.15 million to GB and some \$32.4 million to the salvage contractors, Jessop Marine Recoveries Ltd (10%) and Wharton Williams Ltd (90%). John Rossier, 28, was the first to touch the gold. The longest decompression time was 7 days 10 hours 27 min. The \$71.85 million is an all-time record.

## Deep Diving Records

The record depth for the extremely dangerous activity of breath-held diving is 344 ft by Jacques Mayol (France) off Elba, Italy in Dec 1983 for men and 147½ ft by Giuliana Treleani (Italy) off Cuba in Sept 1967 for women. Mayol descended on a sled in 104 sec and ascended in 90 sec.

The record dive with scuba (self-contained underwater breathing apparatus) is 437 ft by John J. Gruener and R. Neal Watson (US) off Freeport, Grand Bahama, on Oct 14, 1968.

The record dive utilizing gas mixtures (nitrogen, oxygen and helium) is a simulated dive of 2,250 ft in a dry chamber by Stephen Porter, Len Whitlock and Erik Kramer at the Duke University Medical Center, Durham, NC, Feb 3, 1981 in a 43-day trial in an 8-ft sphere.

Patrick Raude and 5 Comex divers left and returned to the bell *Petrel* at 1,643 ft off Cavalaire, France, in 1982.

## Deepest Underwater Escapes

The deepest underwater rescue achieved was of the *Pisces III* in which Roger R. Chapman, 28, and Roger Mallinson, 35, were trapped for 76 hours when it sank to 1,575 ft, 150 miles southeast of Cork, Ireland, Aug 29, 1973. It was hauled to the surface by the cable ship *John Cabot* after preliminary work by *Pisces V*, *Pisces II* and the remote control recovery vessel US CURV, on Sept 1, 1973.

The greatest depth of an actual escape without any equipment has been from 225 ft by Richard A. Slater from the rammed submersible *Nekton Beta* off Catalina Island, Calif on Sept 28, 1970.

## MARRIAGE AND DIVORCE

### Longest Marriages

The longest recorded marriage is one of 86 years between Sir Temulji Bhicaji Nariman and Lady Nariman from 1853 to 1940 resulting from a cousin marriage when both were five. Sir Temulji (b Sept 3, 1848) died, aged 91 years 11 months, in Aug 1940 in Bombay.

An 86th wedding anniversary was achieved by Lazarus Rowe of Greenland, NH, and Molly Webber, both born in 1725, married at 18, and died in 1829.

The only reliable instance of an 83rd anniversary celebrated by a couple marrying at normal ages is that between the late Edd (105) and Margaret (99) Hollen (US) who celebrated their 83rd anniversary on May 7, 1972. They were married in Kentucky on May 7, 1889.

### Longest Engagement

The longest engagement on record is one of 67 years between Octavio Guillen, 82, and Adriana Martinez, 82. They finally took the plunge in June 1969, in Mexico City.

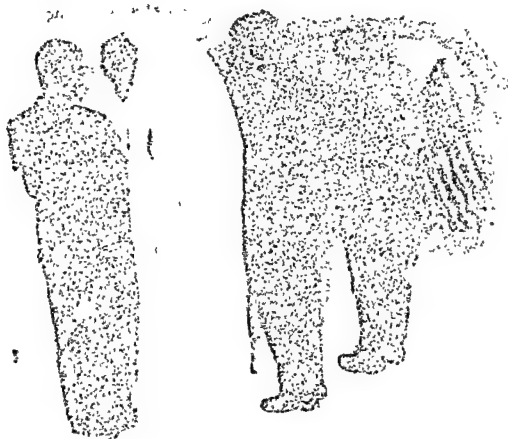
### Most Marriages

The greatest number of marriages accumulated in the monogamous world is 27 by the former Baptist minister Mr Glynn de Moss—"Scotty" Wolfe (US) (b 1908), who first married in 1927. His latest wife is 15-year-old Daisy Delgado (b Dec 29, 1970), a Filipino from Liloan, Cebu. His oldest wife was 38 at the time of marriage. He says he has had 41 children but had only 25 mothers-in-law as he re-married two of his former wives.

Mrs Beverly Nina Avery, then aged 48, a barmaid from Los Angeles, set a monogamous world record in Oct 1957 by obtaining her 16th divorce, this one from Gabriel Avery, her 14th husband. She alleged outside the court that 5 of the 14 had broken her nose.

Giovanni Vigliotto (b Fred Jipp, NYC, Apr 3, 1936 or b Nikolai Peruskov, Siracusa, Sicily, Apr 3, 1929) was arrested in Panama City, Fla, on Dec 30, 1981, for a record 104 bigamous marriages in more than 27 US states and 14 other countries between 1949 and 1981. Four victims were aboard one ship in 1968. He said he specialized in "larceny by deception." Convicted on Mar 28, 1983, in Phoenix, Ariz, he was sentenced to a maximum of 34 years in prison (28 for fraud, 6 for bigamy) and fined \$336,000.

The only "monogamous" citizen who married eight men is Olive Joyce Wilson of Birmingham, Eng. She has consecutively been Mrs John Bickley; Mrs Don Trethowan; Mrs George Hundley; Mrs Raymond Ward; Mrs Harry Latrobe; Mrs Leslie Harris; Mrs Ray Richards and now Mrs John Grassick. All were divorced except Mr Hundley, who died.



## Most Expensive Wedding

The wedding of Mohammed, son of Shaik Zayid ibn Sa'id al-Makhtum, to Princess Salama in Abu Dhabi in May 1981 lasted 7 days and cost an estimated \$33 million including a purpose-built stadium for 20,000.

The most expensive private wedding is reputed to be that of Maria Niarchos, 20, to Alix Chevassus, 36, at her father's estate in Normandy, France on June 16, 1979. Guests consumed an estimated 12,000 bottles of champagne and red wine; the supply of caviar outweighed the demand in four football-field-sized tents. The cost is conservatively estimated at \$500,000.

## Wedding in Ice Cave

"When you're in love you're always warm," said 39-year-old Bruno J. Zehnder, photographer, as he was married to actress Heather May in an ice cave, -15 degrees F cold, 15 ft underground in Antarctica on international territory at midnight on January 27, 1985. Zehnder had proposed to his bride while on an icebreaker from Argentina headed for Antarctica. She had permission from the Argentine president to accompany him and to take along her black silk dress with a 20-ft white train for the wedding. A flock of Adelie penguins (in black-and-white) witnessed the wedding.

## Oldest Bridegroom and Bride

The oldest recorded bridegroom has been Harry Stevens, 103, who married Thelma Lucas, 84, at the Caravilla (Wis) Retirement Home on Dec 3, 1984.

The oldest recorded bride was Mrs Winifred Clark (b Nov 13, 1871) who was married the day before her 100th birthday to Albert Smith, 80, in South Yorkshire, Eng.

## Youngest Married Couple

It was reported in 1986 that an 11-month-old boy was married to a 3-month-old girl in Bangladesh to end a 20-year feud between two families over a disputed farm.

## Golden Anniversaries

Despite the advent of the computer, records on golden (or 50th) wedding anniversaries remain largely uncollated. Unusual cases reported include that of Mrs Agnes Mary Amy Mynott (b May 25, 1887) who attended the golden anniversary of her daughter Mrs Violet Bangs of St Albans on Dec 20, 1980, some 23 years after her own.

Triplets Lucille (Mrs Vogel), Marie (Mrs McNamara) and Alma (Mrs Prom) Pufpaff all celebrated their golden anniversaries on Apr 12, 1982, having all married in Cleveland, Minn, in 1932.

The 3 sons and 4 daughters of Mr and Mrs J. Stredwick of East Sussex, Eng, all celebrated golden weddings between 1978 and 1981.

## Most Married Couple

Jack V. and Edna Moran of Seattle, Wash have married 40 times since the original and only really necessary

Endurance and







crew (Swiss) sailed from Portsmouth (Eng) around the world 1985-86 in 117 days 14 hours 13 min at a speed of 238 mi/day.

### Youngest Transatlantic Rowers

Mike Nestor (GB) 23 years 299 days and Sean Crowley (GB) 24 years 146 days in the 22-ft *In Finnegan's Wake* rowed for 74 days from the Canary Islands to Guyana, South America, in 1986.

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## STUNTS AND MISCELLANEOUS ENDEAVORS

**Accordion Playing.** Tom Luxton of Oldbury, W Midlands, England, played 84 hours continuously in Aug 1982.

**Apple Peeling.** The longest single unbroken apple peel on record is 172 ft 4 in peeled by Kathy Waffer, 17, of Wolcott, NY, in 11 hours 30 min at the Long Ridge Mall, Rochester, NY, Oct 16, 1976. The apple weighed 20 oz.

**Apple Picking.** The greatest recorded performance is 365½ US bushels picked in 8 hours by George Adrian, 32, of Indianapolis, on Sept 23, 1980.

**Baby Carriage Pushing.** The greatest distance covered in 24 hours in pushing a perambulator is 345.25 miles by Runner's Factory of Los Gatos, Calif with an all-star team of 57 California runners June 23-24, 1979. A 10-man team of British Royal Marines from Lymington, Devon, Eng, with an adult "baby" covered 252.65 mi in 24 hours, Mar 31-Apr 1, 1984.

**Balancing on One Foot.** The longest recorded duration for balancing on one foot is 34 hours by Shri N. Ravi in Sathy Amangalam City, Tamil Nadu, India, Apr 17-18, 1982. The disengaged foot may not be rested on the standing foot nor may any sticks be used for support or balance, but 5-minute rest breaks are allowed after each hour.

**Balloon Flights.** The longest reported toy balloon flight is one of 10,000 miles approximately from Dobbs Ferry, NY to Wagga Wagga, Australia. The helium-filled balloon was released by 11-year-old Justin Fiore on Apr 19, 1982 along with others at the Springhurst Elementary School. Justin had a stamped, self-addressed envelope attached to his. R. D. Spraggou found it in the scrub on his sheep station in partially deflated but not punctured condition on May 25, 1982.

**Balloon Release.** The largest ever mass balloon release was one of 1,429,643 sponsored by United Way at Public Square in Cleveland, O on Sept 27, 1986. The release was directed by BalloonArt by Treb Inc. of LA.

**Band, One-Man.** The greatest number of instruments played in a



**Dave Sheriff of Rugby.** England, played his one-man band of 12 instruments (at least 3 instruments played simultaneously) for 100 hours, 20 min, Mar 24-28, 1986 at Coventry, Eng.

**Band Marathons.** The longest recorded "blow-in" is 100 hours 2 min by the Du Val Senior High School band, Lanham, Md, directed by Louis Scarci, May 13-17, 1977.

A 6-piece rock band (with vocalist) played continuously for 100 hours 25 min, Apr 7-11, 1986, sponsored by WRQC, Cleveland, O. The playing duration record for a 4-man pop group is 147 hours by The Decorators, Jan 8-14, 1986 at Boxhill-on-Sea, Eng.

**Barrel Jumping (on ice skates).** The official distance record is 29 ft 5 in over 18 barrels by Yvon Jolin at Terrebonne, Quebec, Canada, in 1981. The female record is 20 ft 4½ in over 11 barrels by Janet Hainstock in Mich on Mar 15, 1980.

**Bathtub Racing.** The record for the annual international 36-mile Nanaimo-to-Vancouver, British Columbia, bathtub race is 1 hour 29 min 40 sec by Gary Deathbridge, 25 (Australia) July 30, 1978. Tubs are limited to 75 in and 6-hp motors. The greatest distance for paddling a hand-propelled bathtub in 24 hours is 90.5 mi by 13 members of the Aldington (Kent, Eng) Social Club May 28-29, 1983.

The longest reported bathtub push was 564.7 miles from Cleveland, O to NYC's Empire State Building by 6 members of Tau Kappa Epsilon fraternity of Cleveland State University in 66 hours 5 min from Sept 8-18, 1983. The bathtub was on bicycle-type wheels and average speed was 9 mph.

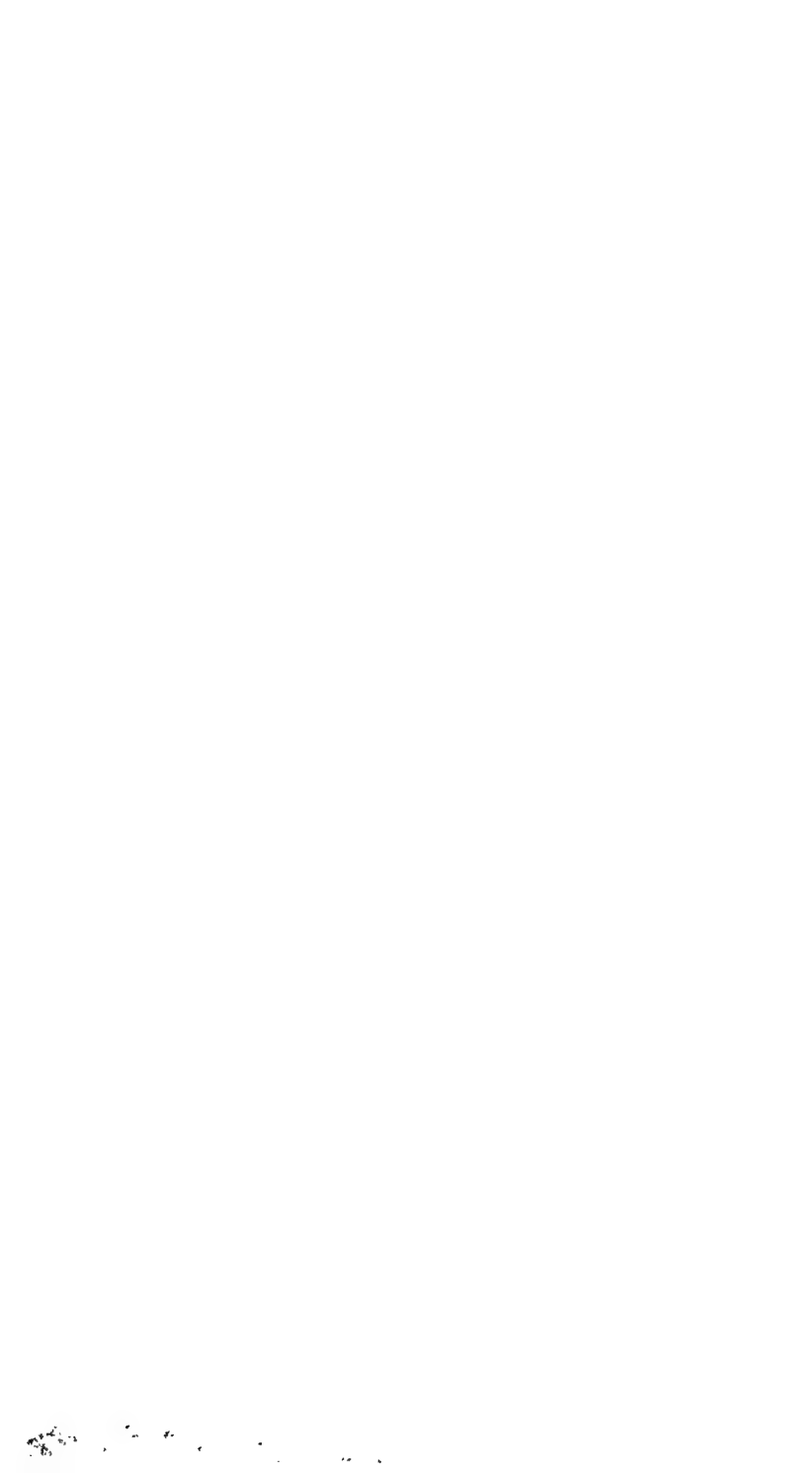
**Baton Twirling.** Victor Cerda, Sol Lozano, Harry Little III (leader) and Manuel Rodriguez, twirled batons for 122½ hours, June 24-29, 1984, in El Sereno, Calif.

**Beard of Bees.** The ultimate beard of bees was achieved by Max Jeck of Arcola, Pa, with 70,000 bees weighing 20 lb, on Aug 24, 1985

**Bed of Nails.** The duration record for non-stop lying on a bed of nails (sharp 6-in nails 2 in apart) is 300 hours May 3-14, 1986 by Rev Ien Owen, 48, of Glamorganshire, Wales. This included 132½ hours without a break. Much longer durations are claimed by uninvgilated *ikirs*—the most extreme case being *Silki* who claimed 111 days in São Paulo, Brazil, ending on Aug 24, 1969.

*Note that the category of "Iron Maiden" (lying between 2 beds of nails with added weight on top) has been retired with the ultimate record being set at 1,642½ lb endured by Komar (Vernon E. Craig) of Wooster, Ohio at Old Chicago Towne March 6, 1977. No further claims for publication will be entertained or published.*

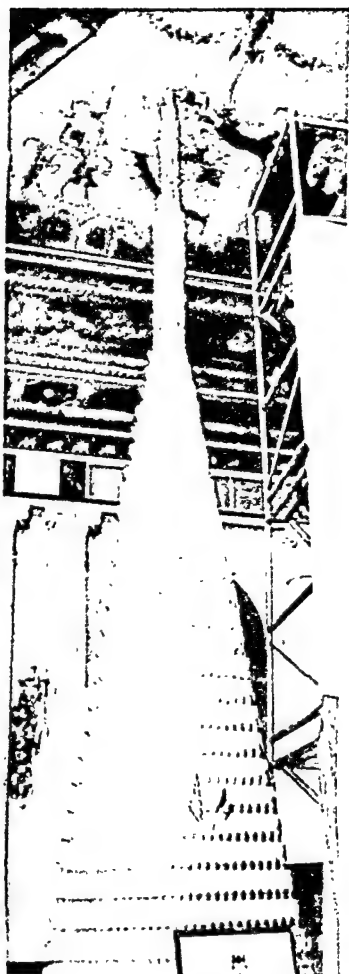
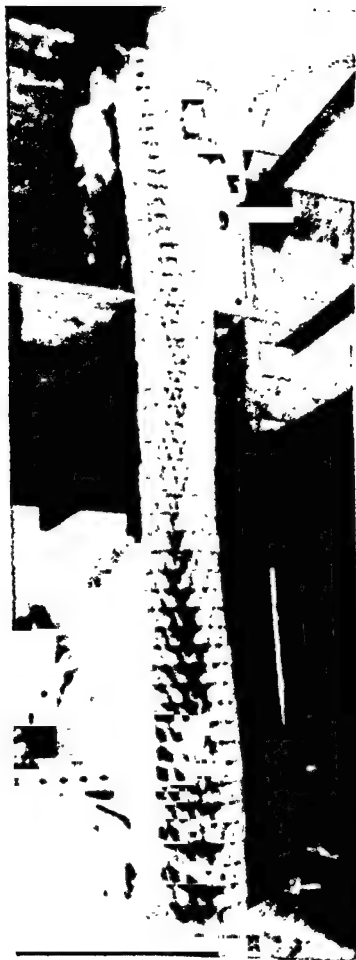
**Bed Pushing.** The longest recorded push of a normally stationary object is 3,233 miles 1,150 yd in the case of a wheeled hospital bed by team of 9, all employees of Bruntfield Bedding Centre, Edinburgh, Scotland, June 21-July 26, 1979.





#### CHAMPAGNE FOUNTAIN: ▶

To launch a new brand of Calif wine, the promoters built this 44-story 24.7-ft-high pyramid of 10,404 glasses and successfully poured the champagne down without toppling the mountain.



#### BEER COASTER

SKYSCRAPER: This 17-ft structure built with 2,034 plastic coasters is the work of 2 German teenagers, Oliver Ochse, 13, and Uwe Kache, 14.

**Billiard Table Jumping.** Joe Darby (1861-1937) cleared a 12-ft billiard table lengthwise, taking off from a running start, using only a 4-in-high solid wooden block, at Wolverhampton, England, Feb 5, 1892.

**Boomerang Throwing.** The earliest mention of a word similar to "boomerang" is "wo-mur-rang" in Collins' *Account N.S. Wales Vocabulary*, published in 1798. The earliest certain Australian account of a returning boomerang (term established in 1827) was in 1831 by Major (later Sir) Thomas Mitchell. Curved throwing sticks for hunting wild fowl were found in the tomb of Tutankhamen, dating from the mid-14th century BC.

World championships and codified rules were not established until 1970. The Boomerang Association of Australia's championship record for distance reached before the boomerang returns is 364.1 ft (diameter) by Bob Burwell in Nov 1981 at Albury. The longest under US rules for out-and-return is 375 ft by Peter Ruhf at Randwick, Sydney, Australia, June 28, 1982. The longest flight duration (with self-catch) is 28.9 sec by Bob Burwell at Albury, NSW, Aust, on Apr 7, 1984. The greatest number of consecutive two-handed catches on record is 553 by Bob Croll (Victoria, Aust) also on Apr 7, 1984.

**Brick Carrying.** The record for carrying a 9-lb brick in a nominated ungloved hand with the arm extended in an uncradled downward pincer grip is 61¼ mi by Reg Morris of Walsall in the West Midlands, Eng, on July 16, 1985.

The women's record of 22½ miles was set by Wendy Morris of Walsall, Eng, on Apr 28, 1986, with a 9-lb-12-oz brick.

**Bricklaying.** Robert Boll of Burbank, Ill, laid 914 bricks in 60 min to win the first US Speed Bricklaying competition at Lansing, Mich on Feb 21, 1987.

**Brick Throwing.** The greatest reported distance for throwing a standard 5-lb building brick is 146 ft 1 in by Geoffrey Capes at Braybrook School, Cambridgeshire, England, on July 19, 1978.

**Bubble Gum Blowing.** The largest bubble blown measured 22 in in diameter, created by Mrs Susan Montgomery Williams of Fresno, Calif, in her home Apr 19, 1985, while a *National Enquirer* photographer watched. He also measured with a "gumputer" calipers on a horizontal rather than a vertical basis, to eliminate any elongation due to gravity.

**CPR (Cardio-Pulmonary Resuscitation).** The longest time that a team of 2 continuously performed CPR (15 compressions alternating with 2 breaths) is 53 hours by Robert Stanbary and Wyatt Pace of Bloomington, Ill, Sept 27-29, 1985, at Eastland Mall and after hours at Bob Knapp's Restaurant in Bloomington.

**Camping Out.** The silent Indian *fakir* Mastram Babu "contented father" has remained on the same spot by the roadside in the village of Chitra for 22 years, 1960-82.

**Canal Jumping.** In the sport of Fierljeppen at Winsam, Friesland, The Netherlands, the record is 61 ft 0¼ in vaulted across the water with a 40-ft aluminum pole set by Aarth de Wit in Aug 1983.

**Card Throwing.** Kevin St Onge threw a standard playing card 185 ft 1 in on the Henry Ford Community College campus, Dearborn, Mich, June 12, 1979.

**Carriage Driving.** The only man to drive 48 horses in a single hitch is Dick Sparrow of Zeaaring, Iowa, 1972-77. The lead horses were 135 ft away.

**Catapulting.** The greatest recorded distance for a catapult shot is 1,362 ft by James F. Pfotenhauer, using a patented 16½-ft "Monarch IV Supershot" and a 53-caliber lead shot on Ski Hill, Escanaba, Mich, on Sept 10, 1977.

**Champagne Fountain.** The tallest successfully filled column of champagne glasses is one 44 stories (24.7 ft) high, filled from the top and using 10,404 long-stemmed glasses, achieved by Pascal Leclerc at the Biltmore Hotel, LA, on June 18, 1984.

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## CIRCUS RECORDS

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A table of historic circus records from 1859 to date was published in the 1985 Edition on p. 305. New records set since 1975 are below:

**Flying Trapeze.** Downward circles or "Muscle grinding"—1,350 by Sarah Denu (age 14) (US) Madison, Wis, May 21, 1983. Single heel hang on swinging bar, Angela Revelle (Angelique), Australia, 1977.

**Highest Aerial Act.** Ian Ashpole (b Jan 15, 1956) of Ross-on-Wye, Eng, performed a trapeze act suspended from a hot-air balloon 16,420 ft up over Cambridgeshire and Suffolk counties, Eng, on May 16, 1986.

**Triple Twisting Double Somersault.** Tom Robin Edelston to catcher John Zimmerman, Circus World, Fla, Jan 20, 1981.

**Full Twisting Triple and the Quadruple Somersault.** Vasquez Troupe, Miguel Vasquez to catcher Juan Vasquez at Ringling Bros, Amphitheatre, Chicago, in Nov 1981. On Sept 20, 1984, Miguel performed a triple somersault in a layout position (no turn) to catcher Juan at the Sports Arena, LA.

**Triple Back Somersault with 1½ Twists.** Terry Cavaretta Lemus (now Mrs St Jules) at Circus Circus, Las Vegas, Nev, in 1969

**Teeter Board.** A 7-person-high pyramid perch was performed by

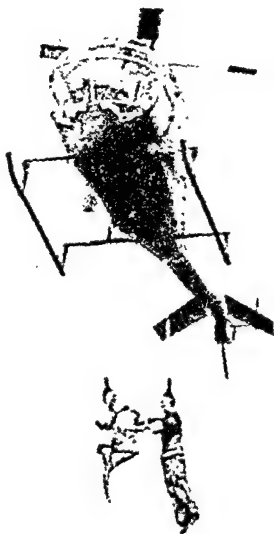


**HANGING BY THEIR HAIR** ▶  
from a helicopter, these German  
circus artists carry off a  
super-act



**7-PERSON HIGH TEETER  
POLE** The Bulgarian Kahaiov  
Troupe performing at a  
Blackpool (Eng) circus in July  
1986 featured 13-year-old  
Magdalena who ended the stunt  
with a somersault leap from the  
top

**BIGGEST FLYING RING** ▶  
**AUDIENCE** Wini McKay swung  
high over a crowd of 85,000  
people at the Los Angeles  
Coliseum in 1980



the Bulgarian Kahaiovi Troupe at the Tower Circus, Blackpool, Eng, on July 16, 1986. It was topped by 13-year-old Magdalena, who made a somersault leap.

**Trampoline.** Septuple twisting back somersault to bed and quintuple twisting back somersault to shoulders by Marco Canestrelli to Belmonte Canestrelli at Madison Square Garden, NYC, on Jan 5 and Mar 28, 1979. Richard Tison (France) performed a triple twisting triple back somersault for television near Berchtesgaden, W Germany on June 30, 1981.

**Flexible Pole.** Double full twisting somersault to a 2-in-diameter pole by Roberto Tabak (aged 11) of the Robertos troupe in Sarasota, Fla, in 1977. Triple full twisting somersault by Corina Coloneanu Mosoiann (age 13) at Madison Sq Garden, NYC, on Apr 17, 1984.

**Human Pyramid (or Tuckle).** Twelve (3 high) supported by a single understander. Weight 1,700 lb by Tahar Douis of the Hassani Troupe at BBC TV Studio, on Dec 17, 1979. Nine high by top-mounter Josep-Joan Martinez Lozano, 10, of the Colla Vella dels Xiquets 39 ft tall on Oct 25, 1981 in Valls, Spain.

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**Clapping.** The duration record for continuous clapping (sustaining an average 160 claps per min audible at 120 yd) is 54 hours by V. Jeyaraman of Tamil Nadu, India, Dec 13-15, 1985.

**Coin Balancing.** The tallest column of coins ever stacked on the edge of a coin is 205 Canadian 25-cent pieces on top of a Canadian Olympic Commemorative which was freestanding vertically on the base of a coin flat on the surface by Bruce McConachy (b 1963) of W Vancouver, British Columbia, for Fuji TV, Tokyo, Feb 24, 1985.

Alex Chervinsky (b Feb 22, 1908) of Lock Haven, Pa, achieved a pyramid of 390 coins on his 77th birthday.

**Coin Snatching.** The greatest number of British 10-pence coins (slightly larger than the US 25-cent piece) caught clean from being flipped from the back of a forearm into the same palm is 132 by Dean Gould at the Feathers Pub in Walton, Eng, on Jan 8, 1987.

**Crawling.** The longest continuous voluntary crawl (progression with one or the other knee in unbroken contact with the ground) on record is 27 mi by Chris Lock at Bristol, Eng, Aug 18-19, 1984.

The Baptist lay preacher Hans Mullikin, 39, arrived at the White House in Washington, DC on Nov 23, 1978, having crawled all but 8 of the 1,600 miles from Marshall, Tex.

Over a space of 15 months ending Mar 9, 1985, Jagdish Chander, 32, crawled 870 mi in India, to propitiate his favorite Hindu goddess Mata.

**Crochet.** Mrs Barbara Jean Sonntag (b 1938) of Craig, Colo, crocheted 330 shells plus 5 stitches (equivalent to 4,412 stitches) in 30 min, at a rate of 147 stitches per min, on Jan 13, 1981.

**Miss Ria van der Honing of Wormerveer, The Netherlands,** completed a crochet chain 38.83 mi in length on July 14, 1986.

**Mrs Sybille Anthony** bettered all marathons of this kind in a 120-hour crochet marathon at Toombul Shoppingtown, Queensland, Australia, Oct 3-7, 1977.

**Cucumber Slicing.** Norman Johnson of the Blackpool College of Art and Technology, England sliced 12 in of a 1½-in-diameter cucumber at 22 slices to the inch (total 244 slices) in 13.4 sec on Apr 3, 1983 in Cologne, W Germany.

**Dancing.** Marathon dancing must be distinguished from dancing mania, which is a pathological condition. The worst outbreak of dancing mania was at Aachen, Germany in July 1374, when hordes of men and women broke into a frenzied dance in the streets which lasted for hours till injury or complete exhaustion ensued.

The most severe marathon dance (staged as a public spectacle in the US) was one by Mike Ritof and Edith Boudreaux, who logged 5,148 hours 28½ min to win \$2,000 at Chicago's Merry Garden Ballroom, Belmont and Sheffield, Ill, from Aug 29, 1930, to Apr 1, 1931. Rest periods were progressively cut from 20 to 10 to 5 to nil minutes per hour with 10-in steps and a maximum of 15 sec for closure of eyes.

**Largest Dance.** A crowd estimated at 25,000 by the local newspapers attended a "Moonlight Serenade" outdoor evening of dancing to the music of the Glenn Miller orchestra in Buffalo, NY, on July 20, 1984 on a 450-ft-long dance floor around the M&T Bank Building. An estimated total of 20,000 dancers took part in the National Square Dance Convention at Louisville, KY, on June 26, 1983.

**Dancing, Ballet.** The greatest number of spins called for in classical ballet choreography is the 32 in *Swan Lake* by Tchaikovsky. Miss Rowena Jackson (later Chatfield) (b 1925, Invercargill, New Zealand) achieved 121 such turns at her class in Melbourne, Australia, in 1940.

**Dancing, Ballroom.** The individual continuous record is 126 hours by Scott Michael, 31, a dancing instructor of Huntington Beach, Calif, June 20-25, 1986 at the Dance Masters Ballroom Studio, Stanton, Calif, when 27 girls worked shifts as his partner.

The most successful professional ballroom dancing champions have been Bill Irvine and Bobbie Irvine of London who won 13 world titles, 1960-72.

The oldest competitive ballroom dancer is Albert J. Sylvester (b Nov 24, 1889) of Corsham, Wiltshire, England, who on Apr 26, 1977, won the topmost amateur Alex Moore award for a 10-dance test with his partner, Paula Smith, in Bath, England. By 1981 he had won nearly 50 medals and trophies since he began dancing in 1964.

**Dancing, Belly and Charleston.** The longest recorded example of a belly dance was one of 106 hours by Eileen Foucher at Rush Green Hospital, Romford, Eng, July 30-Aug 3, 1984. The Charleston duration record is 110 hours 58 min by Sabra Starr of Lansdowne, Pa, Jan 15-20, 1979.

**Dancing, Conga.** The longest recorded conga line was a "snake" of 8,659 people belonging to the Camping and Caravanning Club of GB and Ireland, SE Region, on Sept 4, 1982.

**Dancing, Disco (Including Jive, Twist and Go-Go).** The duration record for non-stop jiving is 97 hours 42 min by Richard Rimmer (with a relay of partners) of Surrey, England, Nov 11-16, 1979. Under the strict rules of the European Rock n' Roll Association the duration pair record is 22 hours by Mirco and Manuela Catalano at the Olympia Shopping Centre, Munich, W Germany Feb 6-7, 1981.

The longest recorded disco dancing marathon is one of 375 hours by Rémy Joseph Mercier in Montreal, Canada Sept 16 to Oct 6, 1985.

**Dancing, Flamenco.** The fastest flamenco dancer ever measured is Solero de Jerez, aged 17, who, in Brisbane, Australia in Sept 1967, in an electrifying routine attained 16 heel taps per sec or 960 per min.

**Dancing, High Kicking.** The record for high kicks (heel to ear level) is 10,502 in 5 hours 30 min by Shawn Kovacich, of Anaconda, Mont, in Butte, Mont, on Sept 27, 1986. He is a 1st grade (Shodan) karate black belt.

Johann Haywood, 25, set a speed record of 98 kicks in 1 min at Kempton Park Village Shopping Centre, South Africa, on Mar 21, 1987.

Veronica Evans (GB) set a speed record of 50 kicks in 25 sec in Manchester, Eng, on Dec 24, 1931



**LOWEST LIMBO:** Marlene Raymond, 15, slithered under a flaming bar 6¼ in off the floor without letting any part of her anatomy except her feet touch the floor.

**Dancing, Limbo.** The lowest height for a flaming bar under which a limbo dancer has passed is 6¼ in off the floor at Port of Spain Pavilion, Toronto, on June 24, 1973, by Marlene Raymond, 15. Strictly no part of the body other than the sole or side of the foot should touch the ground, though brushing the shoulder blade does not in practice usually result in disqualification.

The record on roller skates is 5¼ in by Sandra Siviour on Mar 30, 1985, and by Tracey O'Callaghan on June 2, 1984, both at Bexley, Aust, to equal the mark set by Denise Culp of Rock Hill, SC, on Jan 22, 1984.

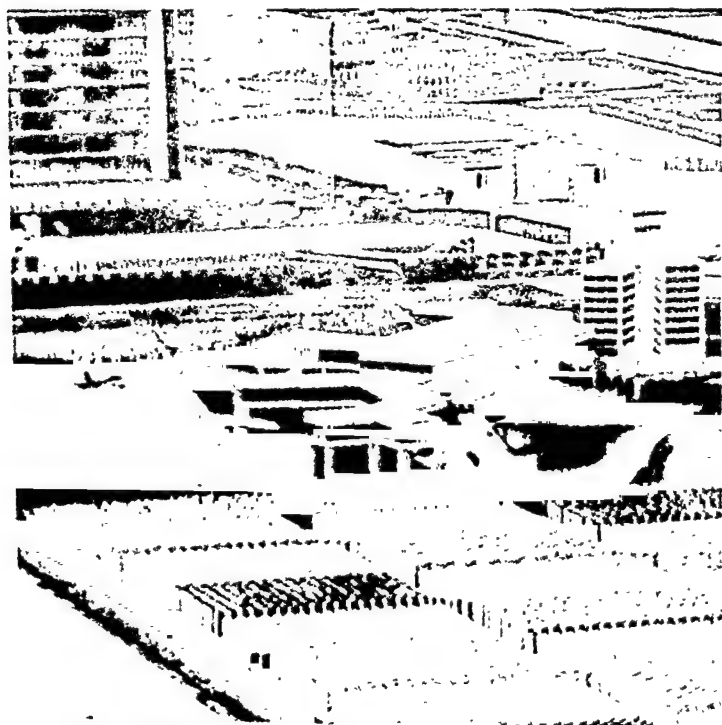


Col Harry A. Froboess (Switzerland) jumped 360 ft into the Bodensee from the airship *Graf Hindenburg* June 22, 1936.

The greatest height reported for a dive into an air bag is 326 ft by the stuntman Dan Koko from the top of Vegas World Hotel and Casino into a  $20 \times 40 \times 14$  ft target on Aug 13, 1984. His impact speed was 88 mph. The women's record is held by Kitty O'Neil who dived 180 ft from a helicopter over Northridge, Calif onto an air cushion  $30 \times 60$  ft on Sept 9, 1979.

**Domino Stacking.** Leard Wayne Woodruff, 76, of McFarland, Calif successfully stacked 242 dominoes on a single supporting domino on Sept 15, 1986.

**Domino Toppling.** The greatest number of dominoes set up single-handed and toppled in a row is 281,581 out of 320,236 set up by Klaus Friedrich, 22, of Weilheim, in Fuerth, W Germany on Jan 27, 1984. They fell in 12 min 57.3 sec, having taken 31 days (10 hours daily) to set up



**DOMINO TOPPLING:** Single-handed, W-German Klaus Friedrich set up 320,236 dominoes in formations like this, taking 31 days of 10 hours each, and on Jan 27, 1984, gave the lead domino one push, causing 281,581 to fall in progression before the line stopped. The fall took less than 13 min.



**Egg and Spoon Racing.** Chris Riggio of San Francisco completed a 28½-mile fresh egg and dessert spoon marathon in 4 hours 34 min Oct 7, 1979.

**Egg Throwing.** The longest authenticated distance for throwing a fresh hen's egg without breaking is 317 ft 10 in by Risto Antikainen to Jyrki Korhonen at Siilinjärvi, Finland, on Sept 6, 1982.

**Escapology.** The most renowned of all escape artists has been Ehrich Weiss, *alias* Harry Houdini (1874–1926), who pioneered underwater escapes from locked, roped and weighted containers while handcuffed and shackled with irons.

A manufacturer of straitjackets acknowledges that an escapologist "skilled in the art of bone and muscle manipulation" could escape from a standard jacket in seconds. There are, however, methods by which such circumvention can itself be circumvented. Nick Janson of Bensfleet, Essex, Eng, has demonstrated his ability to escape from handcuffs locked on him by more than 1,000 different police officers.

**Fashion Show.** The longest distance covered by girl models is 71.1 miles Sept 19–21, 1983 by Roberta Brown and Lorraine McCourt at Parke's Hotel, Dublin, Ireland. The male model Eddie Warke covered a further 11.9 miles on the catwalk. The compère throughout was Marty Whelan of Radio 2.

**Feminine Beauty.** Female pulchritude, being qualitative rather than quantitative, does not lend itself to records. It has been suggested that if the face of Helen of Troy (c 1200 BC) was capable of launching 1,000 ships, then a unit of beauty sufficient to launch one ship should be called a millihelen.

The earliest international beauty contest was staged by P T Barnum (US), in June 1855. The earliest Miss America contest was staged at Atlantic City, NJ in 1921, and was won by a thin blue-eyed blonde with a 30-in bust, Margaret Gorman.

The annual Miss World contest begun in London in July 1951 and the annual Miss Universe contest, inaugurated in Long Beach, Calif. in 1952 are the world's largest. In the latter, the greatest number of countries represented has been 80 in 1983 at St Louis. The most successful country has been the US, with winners in 6 contests. All of the contestants have to spend 3 weeks training for the presentation on TV for the night the winner is decided. The city where the contest is held is reported to have to pay \$800,000 for the privilege.

In the Miss World contest, the UK is the only nation to produce 5 winners. The maximum number of contestants was 72 in 1983.

**Ferris Wheel Riding.** The endurance record for big wheel riding is 37 days by Rena Clark and Jeff Block at Frontier Village Amusement Park, San Jose, Calif July 1–Aug 7, 1978.

**Flute Marathon.** The longest recorded time is 61 hours by Joseph Shury of the Sri Chinmoy Marathon Team, Toronto, Canada, Mar 21–23, 1986.

**Flying Disc.** See *Games, Throwing* in Chapter 12





Feb 9, 1980 in balancing 7 new golf balls vertically without using any adhesive, beating his own record of 6 in 1977.

**Grape Catching.** The longest distance for catching a grape in the mouth that has been thrown from a site on the same ground level is 319 ft 8 in by Arden Chapman of Pioneer, La, July 18, 1980. The Northeast Louisiana Univ football field was used for the event. Jerry "Pete" Mercer, the thrower, stood in one end zone and on the 20th attempt, Chapman caught the grape on the track at the opposite end of the field. A slight cross wind was blowing.

The greatest height from which a grape was dropped and caught in the mouth was 660 ft 2.79 in from a Tokyo (Japan) building on Mar 1, 1986. The catcher, Paul Tavilla of Arlington, Mass, a produce merchant, surpassed his own record. "At 80 mph it hurts," he is quoted as saying.

**Grave Digging.** It is recorded that Johann Heinrich Karl Thieme, sexton of Aldenburg, Germany dug 23,311 graves during a 50-year career. In 1826, his understudy dug *his* grave.

**Guitar Playing.** The longest recorded solo guitar-playing marathon is one of 300 hours by Vincent Paxton at the Lord Nelson public house, Winterslow, Eng, Nov 23-Dec 6, 1986.

**Hairdressing.** Colin Watson and André Douglas each cut, set and styled hair continuously for 408 hours Aug 4-21, 1986 in Northcliff, Transvaal, South Africa

The tallest hairstyle was set at the Bangz Park Ave Salon in Winter Park, Fla with a 6½-ft-tall "beehive" designed by Christopher Morrison and Terry Carden. The 12-lb hairpiece is worn by 120-lb Laura Kelley.

**Hair Splitting.** The greatest reported achievement in hair splitting has been that of the former champion cyclist and craftsman Alfred West (1901-85) who succeeded in splitting a human hair 17 times into 18 parts on 8 occasions.

**Handshaking.** A world record for handshaking was set by President Theodore Roosevelt (1858-1919), when he shook hands with 8,513 people at a New Year's Day White House Presentation in Wash, DC, on Jan 1, 1907.

Disc jockey Mike Butts of Ogden, Utah shook 16,615 different hands in 7 hours 25 min in the "Shake a Hand, Help a Neighbor" campaign on Oct 3, 1986 in Salt Lake City.

*Generally outside public life this record has become meaningless because aspirants either shake hands with anyone passing by or else shake the same hands repetitively.*

**Hand-to-Hand Balancing.** The longest horizontal dive achieved in any hand-to-hand balancing act is 22 ft by Harry Berry (top mounter) and Nelson Soule (understander) of the Bell-Thazer Brothers from Kentucky, who played at state fairs and in vaudeville 1908-17. Berry used a 10-ft tower and trampoline for impetus



**Hopscotch.** The longest recorded hopscotch marathon is one of 101 hours 15 min by Mark Harrison and Tony Lunn at the Studio Night Club, Leicester, Eng. Sept 30-Oct 4, 1985.

**House of Cards.** The greatest number of stories achieved in building free-standing houses of standard playing cards without creasing the cards or using any adhesives is 68 by John Sain, 15, a high school sophomore. His 12-ft-10-in tower, completed Aug 3, 1983, using 15,714 cards, was built in modern skyscraper form at the Univ of Notre Dame engineering school where his father is a teacher.

**Hula-Hooping.** The highest claim for sustaining pyrating hoops between shoulders and hips is 81 hoops by William K. Chico Johnson (b July 8, 1939) on BBC in London, Sept 19, 1983. Three complete gyrations are mandatory. The women's record is 70 hoops by Luisa Valencia in Las Vegas, Nev. in May 1987.

A claim for the longest marathon with a single hoop was 90 hours by Roxann Rose of Pullman, Wash Apr 2-6, 1987, but she used her arm to keep the hoop whirling when tired.

Tonya Lynn Mistal, 15, of Cottonwood, Calif. went 88 hours without a drop of the hoop, July 9-14, 1986, beating her 1983 world record of 60 and topping the later record of 72 hours set by Kym Coberly.

**Human Cannonball.** The record distance for firing a human from a cannon is 175 ft in the case of Emanuel Zacchini, son of the pioneer Hugo Zacchini, in the Ringling Bros and Barnum & Bailey Circus, in 1940. His muzzle velocity was estimated at 54 mph. On his retirement the management was fortunate in finding that his daughter, Florinda, was of the same caliber.

An experiment on Yorkshire TV in England on Aug 17, 1978, showed that when Sue Evans, 17, was fired from a cannon, she was  $\frac{1}{2}$  in shorter in height on landing.

In the Halifax explosion of Dec 6, 1917 (see *Worst Accidents*), A. B. William Becker (d 1969) was blown some 1,600 yd and found, still breathing but deaf, in a tree.

**Human Chair (Unsupported Circle).** The highest number recorded of people who have demonstrated the physical paradox of all being seated without a chair is an unsupported circle of 10,323 employees of the Nissan Motor Co at Komazawa Stadium, Tokyo, Japan, Oct 23, 1982.

**Human Fly.** The longest climb achieved on the vertical face of a building occurred in Aug 1986, when Daniel Goodwin ("Spider Man"), 30, of Calif scaled the outside of the 1,822-ft CN Tower in Toronto using neither climbing aids nor safety equipment.

Lead climber Jean-Claude Droyer (b May 8, 1946) of Paris, France, and Pierre Puisseux (b Dec 2, 1953) of Pau, France, climbed up the outside of the Eiffel Tower to a height of 984 ft in 2 hours 18 min on July 21, 1980. They made the climb with no dynamic mechanical assistance.



**143 UNGIMMICKED CIGAR BOXES** were balanced on his chin for 20 sec. Bruce Block set a new record on July 15, 1987 beating Michael Toro who had balanced 133 only 2 weeks before. The new record was set in a contest at the International Jugglers Convention in Akron, O. The cigar boxes had to be regular size and weight and not glued in any way.



**JOGGLING** with 3 heavily weighted sports balls in competition with unburdened runners in the LA marathon. Albert Lucas, holder of 11 juggling titles gets attention from some runners as he juggles the whole 26.2 mi in 4 hours 4 min 35 sec, beating the majority of the field. (Bill Gidycz)

**BALL-SPINNER** Maxwell Ruppe shows how he spins 6 balls simultaneously, using his head, mouth, hands, knees and toes. (Jeffrey Horne)



consecutive throws; juggling 7 balls for 2 min 3.48 sec; and juggling 7 rings for 3 min 23.05 sec.

Juggling records are recognized only if set in official competitions:

5 objects (while joggling)	Bill Gillen (US) covered 1 mi in 8 min 28 sec, June 25, 1985 Owen Morse (US) covered 100m in 15.25 sec on July 15, 1987
5 objects (while joggling)	Bill Gillen (US) covered 3/10ths of a mi without a drop
3 objects (while joggling)	Owen Morse (US) 100m in 12.12 sec on July 15, 1987 Kirk Swenson (US) ran 1 mi in 4 min 43 sec, July 24, 1986 Prof Helaman Pratt-Ferguson (US) 50 mi in 16 hours 12 min, May 8, 1987 Kirk Swenson (US) 5 km in 16 min 55 sec in 1986 A relay team "The Jugglers," 4 US men (Bill Fowle, Bill Gidierz, Owen Morse, Bill Gillen) ran 1 mile in 4 min 31.2 sec on July 15, 1987.
5 balls (inverted)	Bobby May (US) (since 1953)
3 balls without drop	Ashrita Furman (US) 6 hours 7 min 4 sec 1987
16 hoops (hands and feet)	Ala Naite (female, Japan), 1937
7 clubs	Albert Petrovski (USSR), 1963 Sorin Munteanu (Romania), 1975 Jack Bremlov (Czech) currently
12 rings	Albert Lucas (US) 1985
Pirouettes with 3 cigar boxes	Albert Lucas (US) 1985 Kris Kremo (quadruple turn with 3 boxes in midair) 1977
7 table tennis-balls with mouth	Ferko (US), July 15, 1987
134 cigar boxes on chin	Bruce Block (US), July 15, 1987 in a contest with Michael Toro (US) who balanced 133 on June 29, 1987

In an unequaled exhibition, 476 jugglers kept 1,867 objects up in the air simultaneously on July 23, 1983 in Purchase, NY, at the SUNY campus on the last day of the International Jugglers Assn's 36th Annual Convention. Each person juggled at least 3 objects.

For spinning 8 basketballs simultaneously on May 5, 1987 (on one finger of each hand, knees, toes, head, and mouth), Maxwell Ruppe, Jr. of Fayetteville, NC, claims a record for juggling basketballs. (See *Soccer in Sports*, Chapter 12 for soccer ball balancing.)

**Karate Chop.** *Note: Claims for breaking bricks and wooden blocks are unsatisfactory because of the lack of any agreed standards upon which comparisons can be made of friability and the spacing of fulcrums.*

**Kissing.** The most prolonged osculatory marathon in cinematic history is one of 185 sec by Regis Toomey and Jane Wyman (b Sarah Jane Faulks, Jan 4, 1914, later Mrs. Ronald Reagan) in *You're In the Army Now*, released in 1940.

Eddie Levin, 30, and Delphine Crha, 26, both of Chicago set the record for the longest kiss ever of 17 days 10½ hours on Sept 24, 1984, and celebrated with a kiss.

The most protracted kiss underwater was one of 2 min 18 sec by Toshiaki Shirai and Yukiko Napata on Fuji TV in Tokyo, Japan on Apr 2, 1980.

John McPherson kissed 4,444 women in 8 hours in Newcastle, Eng., on Mar 8, 1985, at a rate of 1 each 6.48 sec.

**Kiss of Life.** Five members of the St John Ambulance, Pier One, Sydney, Australia, maintained a "Kiss of Life" (mouth-to-mouth resuscitation) for 315 hours with 232,150 inflations Aug 27–Sept 9, 1984. The "patient" was a dummy.

**Kite Flying.** The longest recorded flight is one of 180 hours 17 min by the Edmonds Community College team at Long Beach, Wash Aug 21–29, 1982. Managing the flight of the J-25 parafoil was Harry N. Osborne.

The classic record is 31,955 ft up by a chain of 8 kites over Lindenberg, (now East) Germany, on Aug 1, 1919. The record altitude for a single kite is 22,500 ft (min)–28,000 ft (max) by Prof Philip R. and Jay P. Kunz of Laramie, Wyo, on Nov 21, 1967, according to *Kite Lines* magazine.

The most kites flown on a single line is 7,150 by Sadao Harada, 69, at Kagoshima, Japan, Apr 27, 1987.

The largest kite ever flown (2,133 ft long and 8,288 sq ft in area) was the "Thai Snake" flown by Herman van den Broek and Jan Pieter Kuil for 22 min 50 sec at Uithuizen, The Netherlands, on Aug 11, 1984.

**Knitting.** The most prolific hand-knitter has been Mrs Gwen Matthewman (b 1927) of Featherstone, W Yorkshire, England, who in 1979 knitted 915 garments involving 11,012 oz of wool (equivalent to the fleece of 89 sheep). She has been timed to average 111 stitches per min in a 30-min test. Her technique has been filmed by the world's only Professor of Knitting—a Japanese.

The Exeter Spinners—Audrey Felton, Christine Heap, Eileen Lancaster, Marjorie Mellis, Ann Sandercrook and Maria Scott produced a jumper by hand from raw fleece in 1 hour 55 min 50.2 sec on Sept 25, 1983 at BBC Television Centre, London.

**Knot Tying.** The fastest recorded time for tying the six Boy Scout Handbook knots (square knot, sheet bend, sheep shank, clove hitch, round turn, and two half hitches, and bowline) on individual ropes is 8.1 sec by Clinton R. Bailey Sr, 52, of Pacific City, Ore on Apr 13, 1977.

**Leap Frogging.** Fourteen members of Phi Gamma Delta fraternity at the University of Seattle, Wash, covered 602 miles in 114 hours 26 min, March 20–25, 1983. (Total leaps 108,463—one every 9.77 yd.)



**Life Saving.** In Nov 1974, the City of Galveston, Tex and the Noon Optimist Club unveiled a plaque to the deaf-mute lifeguard Leroy Colombo (1905-74), who saved 907 people from drowning in the waters around Galveston Island, 1917-1974.

**Lightning-Struck.** The only man in the world to be struck by lightning 7 times is former Shenandoah Park Ranger Roy C. Sullivan (US), the human lightning-conductor of Virginia. His attraction for lightning began in 1942 (lost big toenail) and was resumed in July 1969 (lost eyebrows), in July 1970 (left shoulder seared), on Apr 16, 1972 (hair set on fire) and, *finally*, he hoped, on Aug 7, 1973: as he was driving along a bolt came out of a small, low-lying cloud, hit him on the head through his hat, set his hair on fire again, knocked him 10 ft out of his car, went through both legs, and knocked his left shoe off. He had to pour a pail of water over his head to cool off. Then, on June 5, 1976, he was struck again for the sixth time, his ankle injured. When he was struck for the *seventh* time on June 25, 1977, while fishing, he was sent to Waynesboro Hospital with chest and stomach burns. He could offer no explanation for his magnetism, but he donated his lightning-burnt Ranger hats to some of the Guinness World Records Exhibit Halls. In Sept 1983, reportedly rejected in love, he died of a self-inflicted gunshot wound.

**Lion Taming.** The greatest number of lions mastered and fed in a cage simultaneously by an unaided lion-tamer was 40, by "Captain" Alfred Schneider in 1925.



**LIGHTNING STRUCK** him 7 times and didn't kill Roy C. Sullivan, Virginia Park Ranger, but finally he died in 1983 by his own hand.



**LARGEST KITE:** The "Thai Snake," flown by two Dutchmen on Aug 11, 1984, is 2,133 ft long, and 8,288 sq ft in area.

**Clyde (Raymond) Beatty** (b Bainbridge, Ohio, June 10, 1903, d Ventura, Calif, July 19, 1965) likewise handled more than 40 "cats" (mixed lions and tigers) simultaneously. Beatty, top of the bill for 40 years, insisted on being called a lion-trainer. More than 20 lion-tamers have died of injuries since 1900.

**Log Rolling.** The record number of International Championships is 10 by Jubiel Wickheim (of Shawnigan Lake, BC, Canada) between 1956 and 1969. At Albany, Ore, on July 4, 1956, Wickheim rolled on a 14-in log against Chuck Harris of Kelso, Wash for 2 hours 40 min before losing.

The youngest international log-rolling champion is Cari Ann Hayer (b June 23, 1977) who won her first championship July 15, 1984 at Hayward, Wis.

**Magician, Most Versatile.** Under the surveillance of 4 representatives of International Brotherhood of Magicians, Paul Ricksecker performed 63 separate tricks in 4 min at the 56th Annual Magi-Fest, Columbus, O, on Feb 5, 1987.

**Merry-Go-Round.** The longest marathon ride on record is one of 312 hours 43 min by Gary Mandau, Chris Lyons and Dana Dover in Portland, Ore, Aug 20-Sept 2, 1976.

**Message in a Bottle.** The longest recorded interval between drop and pick-up is 72 years in the case of a message thrown from the SS *Arawatta* out of Cairns, Aust, on June 9, 1910, in a lotion bottle and reported to be found on Moreton Is, Aust, June 6, 1983.

**Milk Bottle Balancing.** The greatest distance walked by a person while continuously balancing a full pint milk bottle on his head is now 24 miles, set by Ashrita Furman of Jamaica, NY, July 10, 1983.

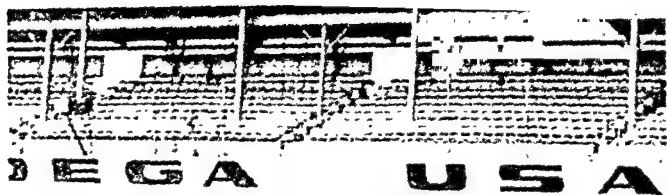
**Morse Code.** The highest recorded speed at which anyone has received Morse code is 75.2 wpm—over 17 symbols per sec. This was achieved by Ted R. McElroy (US) in a tournament at Asheville, NC, July 2, 1939. The highest speed recorded for hand key transmitting is 475 symbols per min by Harry A. Turner of the US Army Signal Corps at Camp Crowder, Mo, Nov 9, 1942.

**Motorcycle and Car Stunting.** The longest distance ever achieved for motorcycle long jumping is 241 ft over 20 juggernauts by Chris Bromham at the Royal Victoria Dock, Eng on Aug 31, 1986. The take-off speed of his Yamaha was reported to be 128 mph.

The pioneer of this form of exhibition—Evel Knievel (b Oct 17, 1938, Butte, Mont)—suffered 433 bone fractures in his career. His abortive attempt to cross the 1,600-ft wide and 600 ft deep Snake River Canyon, Idaho on Sept 8, 1974 in a rocket reputedly increased his lifetime earnings by \$6 million.

Terry McGauren motorcycled up the outdoor 1,700 steps of the CN Tower, Toronto, Canada, on June 26, 1984.

Doug Denmoske went 145 mi on the back wheel of his motorcycle without stop or touching down on the 2.66 mi tri-oval paved track at Alabama International Motor Speedway in Talladega, Ala, on June



**"WHEELIE KING"** Doug Domokos alone on his record-breaking 115-mi ride at Talladega, Ala., in 1984.

**MOTORCYCLE ASCENT** Riding up stairs is not what bikes were intended for, but Terry McGauren, a professional stuntman, 23, got the idea that he could mount the 1,760 steps of Toronto's CN Tower on his 250-cc Yamaha. So, on the tower's 8th birthday, he did it. (Toronto Star)



**MOST ON ONE MOTORCYCLE:** 40 members of the Brazilian Army Military Police drove on this 1976 Harley Davidson 1200-cc bike for more than a kilometer (0.62 mi) on Feb 8, 1986



27, 1984. His average speed was in excess of 50 mph, and he stopped only because he ran out of gas on the 146th mi.

Riding on the back wheel only, Janim (Jimmy) Gentile of Torrance, Calif., traveled 440 yd (¼ mi) at a speed of 120.8 mph, beating the record held previously by Ottis Lance at Penwell Raceway Park, Tex when he sped 112 mph over 440 yd on a Suzuki GS-1000.

The longest ramp jump in a car by a professional stunt driver is 232 ft by Jacqueline De Creed (*née* Creedy) in a 1967 Ford Mustang at Santa Pod Raceway, Bedfordshire, Eng., on Apr 3, 1983.

The most on a motorcycle is 40 members of the Brazilian Army Military Police, who drove on a Harley Davidson 1200-cc motorcycle for more than 60ths of a mile on Feb 8, 1986.

**Musical Chairs.** The largest game on record was one starting with 5,151 participants and ending with Bill Bronson on the last chair at the Univ of Notre Dame, Indiana, on Sept 6, 1985.

**Needle Threading.** The record number of strands of cotton threaded through a number 13 needle (eye ½ × 1.16 in) in 2 hours is 3,795 by Brenda Robinson of the College of Further Education, Chippenham, Wiltshire, England, on March 20, 1971.

**Omelet Making.** The greatest number of 2-egg omelets made in 30 min is 315 by John Elkhay at the City Lights Restaurant in Providence, RI on June 29, 1985. He went on to set an endurance record of 36 hours during which he made 5,247 omelets, all of which were eaten by hungry observers or sent to worthy institutions.

**Onion Peeling.** The record for onion peeling is 50 lb (52 onions) in 5 min 23 sec by Alfonso Salvo of York, Pa., on Oct 28, 1980. Before the current requirement of having at least 50 onions in the 50 lb, a record of 3 min 18 sec was set by Alan St John of Plainfield, Conn on July 6, 1980.

**Organ Marathons.** The longest church organ recital ever sustained was one of 440 hours by Tony Peters at Sheppey Beach Social Club, Isle of Sheppey, Kent, Eng., from Apr 20-26, 1987.

The longest recorded electric organ marathon is 411 hours by Vince Bull at the Comet Hotel, Scunthorpe, England June 2-19, 1977.

**Paddle Boating.** The longest recorded voyage in a paddle boat is 2,226 mi in 103 days by the foot power of Mick Sigrist and Brad Rud down the Mississippi River from the headwaters in Minn to the Gulf of Mexico, Aug 4-Nov 11, 1979.

**Parachute, Longest Fall Without Parachute.** Vevna Vulovic, 23, a Jugoslavenski Aerotransport hostess, survived when her DC-9 blew up at 33,330 ft over the Czechoslovak village of Serboka Kamenice on Jan 26, 1972. She was hospitalized for 16 months after emerging from a 27-day coma, having broken many bones. She is now Mrs Breka.

# PARACHUTING RECORDS

First from Tower	Louis-Sébastien Lenormand (1757-1839)	Quasi-parachute	Montpellier, France	1783
Earliest Mid-Air Rescue	Miss Dolly Shepherd brought down Miss Loule May on her single chute	from balloon at 11,000 ft	Longton, Eng	June 9, 1908
First from Aircraft (man)	"Capt" Albert Berry	aerial exhibitionist	St Louis	Mar 1, 1912
(woman)	Mrs Georgina "Tiny" Broadwick		Griffith Park, Los Angeles	June 21, 1913
Lowest Escape	Squad Leader T. Spencer, RAF	30-40 ft	Wismar Bay, Baltic Sea	Apr 19, 1945
Longest Duration Fall	Lt Col Wm. H. Rankin, USMC	40 min, due to thermals	North Carolina	July 26, 1956
Longest Delayed Drop	Capt Joseph W. Kittinger <sup>1</sup>	84,700 ft (16.04 miles) from balloon at 102,800 ft	Tularosa, NM	Aug 16, 1960
(woman)	O. Kommissarova (USSR)	46,250 ft	over USSR	Sept 21, 1965
Most Southerly	T/Sgt Richard J. Patton (d 1973)	Operation Deep Freeze	South Pole	Nov 25, 1956
Most Northerly	Dr Jack Wheeler (US)	Pilot, Capt Rocky Parsons	in Lat 90° 00' N	Apr 15, 1981

# Stunts and Miscellaneous Feats

Career Total (man)	Yuri Baranov (USSR) and Anatoly Osipov (USSR)	10,000	over USSR	to Sept 1980
(woman)	Valentina Zakaretskaya (USSR)	8,000	over USSR	1964-Sept 1980
Highest Landing	Ten USSR parachutists <sup>2</sup>	23,305 ft	Lenina Peak	May 1969
Highest Tower Jump	Herbert Leo Schmidt (US)	RTU-TV Mast 1,984 ft	Tulsa, Okla	Oct 4, 1970
Connected Free Fall (Biggest Star)	100-man team (75 men, 25 women)	Formation held 7 6 sec from 6,000 ft	Davis Field, Muskogee, Okla	July 5, 1986
Highest Column	28-man US team	United Parachute Club	Gilbertsville, Pa	Sept 22, 1985
Lowest Indoor Jump	Andy Smith and Phil Smith	192 ft	Houston Astro dome, Tex	Jan 16-17, 1982
Most Traveled	Kevin Seaman from a Cessna Skylane (pilot, Charles Merritt)	12 186 miles	Jumps in all 50 US states	July 26-Oct 15, 1972
Oldest Man	Edwin C Townsend	89 years	Vermillion Bay, La	Feb 6, 1986
Oldest Woman	Mrs Sylvia Brett (GB)	80 years 166 days	Cranfield, Eng	Aug 23, 1986
24-Hour Total	David Huber (US)	250	Issaquah, Wash	July 3-4, 1985
Lowest Mid-Air Rescue	Gregory Robertson saved Debbie Williams (unconscious)	Collision at 9,000 ft, pulled her ripcord at 3,500 ft 10 sec from impact	Coolidge, Ariz	Apr 18, 1987



Part 1000

general chairman John Mathiasen and produced by Greg Thompson with a cast of 2,500. The floor was decorated with 1,000 Christmas trees, each with 100 lights; 150,000 snow-white balloons; and 3 ice ponds.

During St. Patrick's week of Mar 11-17, 1985, Houlahan's Old Place hosted St. Pat's parties at the 47 Kansas City, Missouri-based Gilbert/Robinson restaurants for a total of 206,854 documented guests.

**Piano Playing.** The longest piano-playing marathon has been one of 1,218 hours (50 days 18 hours) by David Scott May 7-June 27, 1982, at Wagga Wagga League's Football Club, Australia.

**Piano Tuning.** The record time for pitch raising (one semi-tone or 100 cents) and then returning a piano to a musically acceptable quality is 4 min 20 sec by Steve Fairchild at the Piano Technicians Guild contest at the Dante Piano Co factory, Ronkonkoma, NY, Feb 5, 1980.

**Pipe Smoking.** The duration record for keeping a pipe (with 3.3 grams of tobacco) continuously alight with only an initial match under IAPSC (International Association of Pipe Smokers Clubs) rules is 126 min 39 sec by the 5-time champion William Vargo of Swartz Creek, Mich at the 27th World Championships in 1975. The only other 5-time champion is Paul T. Spaniola (US) (1951 66 70 73 77). Joe Oeth achieved 130 min 11 sec at the Iowa State Fair contest on Aug 18, 1984, using two matches. Longer durations have been recorded in less rigorously invigilated contests in which the foul practices of "tamping" and "gardening" are not unknown.

**Plate Spinning.** The greatest number of plates spun simultaneously is 84 by Dave Spathaky on BBC TV *Record Breakers* on Oct 21, 1986.



**POGO STICK JUMPER**  
Ashrita Furman (b 1954) of Jamaica, NY, who holds other Guinness records, set 2 with his pogo stick. He made 3,647 jumps in 4 hours 40 min in 8-ft-deep water in Peru, and also went 11 1/2 mi on Mt Fuji, Japan, for a distance record.



**Pogo Stick Jumping.** The greatest number of jumps achieved on a pogo stick is 130,077 by Guy Stewart in Reading, Ohio on Mar 8-9, 1985.

In 8-ft-deep water in the Amazon River, Peru, Ashrita Furman (b 1954) of NYC made 3,647 jumps on a pogo stick in 3 hours 40 min on Jan 11, 1987. With each jump his head came up above the surface and he breathed through mask and snorkel.

Furman also set a distance record of 11.53 mi on a pogo stick, going up and down the foothills of Mt Fuji, Japan, on Jan 8, 1986 in 8 hours 21 min.

**Pole Sitting.** There being no international rules, the "standards of living" atop poles vary widely. The record squat is 488 days by Mark Sutton in Victoria (BC), Canada, ending on July 1, 1985. He was sitting for the local Paraplegic Association.

Modern records do not, however, compare with that of St Simeon the Elder (c. 390?-459 AD), called Stylites (Greek, *stylos* = pillar), a monk who spent his last 37 years on a stone pillar on the Hill of Wonders, Syria. This is probably the earliest example of record setting.

**Potato Peeling.** The greatest amount of potatoes peeled by 5 people to an institutional cookery standard with regular kitchen knives in 45 min is 587 lb 8 oz by J. Mills, M. McDonald, P. Jennings, E. Gardiner and V. McNulty at Bourke Street Hall, Melbourne, Australia, on Mar 17, 1981.

**Quizzing.** The highest number of participants was 80,977 in the All Japan High School Quiz Championship televised on Dec 31, 1983. The most protracted contest was that lasting 110 hours in Long Hanborough, Eng, Mar 27-Apr 1, 1986 when two teams correctly answered 22,483 out of 37,310 questions.

**Quoit Throwing.** The world's record for rope quoit throwing is an unbroken sequence of 4,002 pegs by Bill Irby, Sr of Australia in 1968.

**Rappeling (or Abseiling).** The west face of Thor Peak, Baffin Island, Canada, allowed an abseiling or rappeling record of 3,250 ft by Steve Holmes (US) in July 1982. The longest descent down the side of a skyscraper is one of 580 ft (52 stories) in Hong Kong by Capt Martin Fuller (GB) on Sept 1, 1984.

**Rocking Chair.** For 453 hours 40 min (just a few hours short of 19 days), "Ramblin' Rob" McDonald sat and rocked in the window of the Pizza Factory in Mariposa, Calif, Mar 14-Apr 2, 1986.

**Roller Coasting.** The endurance record for rides on a roller coaster is 503 hours by M. M. Daniel Glada and Normand St-Pierre at Parc Belmont, Montreal, Canada July 18-Aug 10, 1983. The minimum qualifying average speed required is 25 mph.

**Roller Skating.** The longest recorded continuous roller skating marathon was one of 344 hours 18 min by Isamu Furugen at Naka Roller Skate Land, Okinawa, Japan, Dec 11-27, 1983.

**Rolling Pin.** The record distance for a woman to throw a 2-lb rolling pin is 175 ft 5 in by Lori La Deane Adams, 21, at the Iowa State Fair, Aug 21, 1979.

**Rummage Sale.** The largest known rummage sale or "white elephant sale" was held at the Cleveland, O., Convention Center on Oct 18 and 19, 1983. On the first day \$294,972.53 was collected, and for the two days, a total of \$427,935.21 was raised for the non-profit Garden Center of Greater Cleveland.

**Sand Sculpting.** The longest sand sculpture on record was a 10,760-ft long "Millerpede" which meandered along South Padre Beach, Tex on Mar 17, 1987 organized by Louise Lowenthal.

The world's tallest sand castle, 5 stories or 52.81 ft tall, representing the "Lost City of Atlantis," may also be the largest, weighing an estimated 48,384 tons. Built on Treasure Island, Fla, Apr 19-26, 1986 (and torn down on May 5, 1986), it was constructed by 2,000 enthusiastic volunteers trained by the Sand Sculptures International Group. It was 257.5 ft long and 200 ft wide.

**Search, Longest.** Walter Edwin Percy Zillwood (b London, Dec 1900) traced his missing sister Lena (Mrs Elizabeth Eleanor Allen, b Nov 1897, d Jan 1982) after 79 years through the agency of the Salvation Army on May 3, 1980.

**See-Saw.** The most protracted session for see-sawing indoors is one of 1,101 hours 40 min by George Partridge and Tamara Marquez of Auburn High School, Wash. on a suspension see saw (indoors) on Mar 28-May 13, 1977.

Georgia Chaffin and Tammy Adams of Goodhope Junior High School, Cullman, Ala, completed 730½ hours outdoors, June 25-July 25, 1975.

**Sermon.** The longest sermon on record was delivered by the Rev Ronald Gallagher at the Baptist Temple, Appomattox, Va, June 26-July 1, 1983 for 120 hours.

From May 31 to June 10, 1969, the 14th Dalai Lama (b July 6, 1935, as Tenzin Gyalto), the exiled ruler of Tibet, preached a sermon on Tantric Buddhism for 5 to 7 hours per day to total 60 hours, in India.

**Shaving.** The fastest barber on record is Gerry Harley, who shaved 987 men in 60 min with a safety razor in Gillingham, England, on Apr 28, 1983, taking 3.64 sec per volunteer. He shaved 235 even braver volunteers with a cutthroat razor in a less perfunctory 15.3 sec per face on Aug 13, 1984. He drew blood only once.

**Shoe Shining.** In this category (limited to teams of 4 teenagers, an 8-hour time limit, and all shoes "on the hoof") the record is 6,789 pairs by the Sheffield (England) Citadel Band of the Salvation Army on Feb 27, 1982.

**Shorthand, Fastest.** The highest recorded speeds ever attained under championship conditions are 300 words.

#### Stunts and Miscellaneous



G. W. Bunbury of Dublin, Ireland, held the unique distinction of writing at 250 wpm for 10 minutes on Jan 23, 1894.

Arnold Bradley achieved a speed of 309 words per min without error using the Sloan-Duployan system with 1,545 words in 5 minutes in a test in Walsall, England on Nov 9, 1920.

**Showering.** The most prolonged continuous shower bath on record is one of 340 hours 40 min set by Kevin "Catfish" McCarthy at Buffalo State College (NY) Mar 29-Apr 12, 1985.

The female record is 121 hours 1 min by Lisa D'Amato, Nov 5-10, 1981, at Harpur College, Binghamton, NY.

Desquamation can be a positive danger.

**Singing.** The longest recorded solo singing marathon is one of 200 hours 20 min by Jorge Antonio Hidalgo Chamomo at the Piano Bar, Barcelona, Spain, Nov 7-15, 1985. The marathon record for a choir is 72 hours 2 min by the combined choir of Girls High School and Prince Edward School, Salisbury, Zimbabwe, Sept 7-10, 1979.

Acharya Prem Bhikuji (d Apr 18, 1970) started chanting the Akhand Rama-Dhoon on July 31, 1964 and devotees took this up in rotation continuing their devotions, which were still in progress in Apr 1987 at Jamnagar, India.

**STILL A RECORD:** In Sept 1982, Trevor Baxter (Eng) high-jumped on a skateboard 5 ft 5.7 in high at Grenoble, France, and no one has been able to do better.



**SINGING ALONE** (with just his guitar) Jorge Chamomo sang continuously for 200 hours 20 min at the Piano Bar in Barce... Spain in Nov 1985.

**Skateboarding.** Although no official association exists any longer, "world" championships have been staged intermittently since 1966. David Frank, 25, covered 270.483 mi in 36 hours 43 min 40 sec in Toronto, Canada Aug 11-12, 1985.

The highest speed recorded on a skateboard is 71.79 mph on a course at Mt Baldy, Calif, in a prone position by Richard K. Brown, 33, on June 17, 1979.

The stand-up record is 53.45 mph by John Hutson, 23, at Signal Hill, Long Beach, Calif, June 11, 1978.

The high jump record is 5 ft 5.7 in by Trevor Baxter (b Oct 1, 1962) of Burgess Hill, Sussex, England, at Grenoble, France, Sept 14, 1982. At Signal Hill on Sept 25, 1977, Tony Alva, 19, jumped over 17 barrels (17 ft).

**Slinging.** The greatest distance recorded for a slingshot is 1,434 ft 2 in, using a 51-in-long sling and a 2-oz stone, by Lawrence L. Bray at Loa, Utah, on Aug 21, 1981.

**Smoker, Most Voracious.** Jim (The Mouth) Purol of Livonia, Mich, broke his own records by simultaneously smoking 140 cigarettes for 5 min on Jan 28, 1983 in Detroit; then on Apr 21, 1983 in Farmington, Mich he simultaneously smoked 40 cigars for 5 min; not content with that, Purol kept 38 pipes in his mouth for 5 min in Hollywood on June 9, 1983. Purol is a non-smoker.

Simon Argevitich of Oakland, Calif, whistled, hummed, gave bird imitations, sang and talked while lighting 17 cigars and smoking them at the same time July 3, 1982 in front of the Guinness Museum of World Records on Fisherman's Wharf, San Francisco, Calif.

George Anastassopoulos (b Patras, Greece Aug 20, 1911) kept account of smoking 40,730 cigars from Jan 1950 to June 1984.

**Smoke-Ring Blowing.** The highest recorded number of smoke rings formed with the lips from a single pull of a cigarette with cheek tapping disallowed, is 355 by Jan van Deurs Formann of Copenhagen, Denmark, achieved in Switzerland in Aug 1979.

**Spike Driving.** In the World Championship Professional Spike Driving Competition held at the Golden Spike National Historic Site in Utah, Dale C Jones, 49, of Lehi, drove six 7-inch railroad spikes in a time of 26.4 sec on Aug 11, 1984. He incurred no penalty points under the official rules.

**Spinning.** The duration record for spinning a clock balance wheel by hand is 5 min 26.8 sec by Philip Ashley, aged 16, of Leigh, Greater Manchester, England, May 20, 1968. The record using 36 in of string with a 7¼ oz top is 58 min 20 sec by Peter Hodgson at Southend-on-Sea, Eng on Feb 4, 1985.

A team of 25 from the Mizushima Plant of Kawasaki Steel Works in Okayama, Japan, spun a giant top 6 ft 6¼-in and 8 ft 6¼-in in diameter weighing 793.6 lb for 1 hour 21 min 35 sec on Nov 3, 1986.

**Spitting.** The greatest distance achieved at the annual (July) tobacco-spitting classic (instituted 1955) at Raleigh, Miss is 33 ft 7½ in by Jeff Barker on July 25, 1981. (He won his 13th national title in

1985 at Raleigh. In 1980 he reached 45 ft at Fulton, Miss.) In the 3rd International Spittin', Belchin' and Cussin' Triathlon, Harold Fielden reached 34 ft ¼ in at Central City, Colo, July 13, 1973. Distance is dependent on the quality of salivation, absence of cross wind, no-finger pucker and the coordination of the back arch and neck snap. Sprays or wads smaller than a dime are not measured.

Randy Ober of Bentonville, Ark, spat a tobacco wad 47 ft 7 in (without any tail wind) at the Calico 5th Annual Tobacco Chewing and Spitting Championships north of Barstow, Calif, Apr 4, 1982.

The record for projecting a melon seed under WCWSSA (World Championship Watermelon Seed Spitting Association) rules is 65 ft 4 in by John Wilkinson in Luling, Tex, on June 28, 1980. The greatest reported distance for a cherrystone is 65 ft 2 in by Rick Krause, at Eau Claire, Mich on July 5, 1980. Spitters who care about their image wear 12-in block-ended boots so practice spits can be measured without a tape.

**Square Dance Calling.** Alan Covacic called continuously for 24 hours 2 min for the Wheelers and Dealers SDC at St John's Hospital, Stone, Buck, Eng, Nov 23-24, 1984.

**Stair Climbing.** The 100-story record for stair climbing was set by Dennis W. Martz in the Detroit Plaza Hotel, Detroit, Mich on June 26, 1978, at 11 min 23.8 sec. Dale Neil, 22, ran a vertical mile up and down the stairs of the Peachtree Plaza Hotel, Atlanta, Ga in continuous action of 2 hours 1 min 24 sec on Mar 9, 1984. *These records can only be attempted in buildings with a minimum of 70 stories.*

Pete Squires raced up the 1,575 steps of the Empire State Building, NYC, in 10 min 59 sec on Feb 12, 1981. Janine Aiello of San Francisco, set the women's record for the event when she scaled the 1,050 vertical ft in 13 min 14 sec on Feb 14, 1985.

The record for climbing the 1,760 steps in the world's tallest free-standing structure, Toronto's CN Tower, is 8 min 28 sec by George Kepenyess, 22, of Hamilton, Ont, Canada, on Oct 27, 1985, beating 1,300 people in a charity climb. Robert C. Jezequel ran 7 round trips in 6 hours 23 min in 1982 without use of the elevator for a vertical height of 15,708 ft.

In the line of duty, Bill Stevenson has mounted 334 of the 364 steps of the tower in the Houses of Parliament, Eng, 4,000 times in 15 years (1968-83)—equivalent to 24.9 ascents of Mt Everest.

**Standing Up.** The longest period on record that anyone has stood up continuously is more than 17 years, from 1955 to Nov 1973, in the case of Swami Maujgiri Maharaj while performing the *Tapasya* or penance in Shahjahanpur, Uttar Pradesh, India. When sleeping he would lean against a plank. He died aged 85 in Sept 1980.

**Stilt Walking.** Even with a safety wire, very high stilts are extremely dangerous—25 steps are deemed to constitute "mastery." Eddy Wolf (also known as Steady Eddy) of Loyal, Wis, mastered stilts measuring 40 ft 6½ in from ground to ankle over a distance of 27 steps without touching his safety handrail wires, at Yokohama Dreamland Park, Japan, on Mar 9, 1986. His aluminum stilts weighed 55 lb each.

Joe Long (b Kenneth Caesar), who has suffered 5 fractures.

## Stunts and Miscellaneous

mastered 56-lb 24-ft stilts at the BBC TV Centre, London on Dec 8, 1978.

Hop pickers use stilts up to 15 ft. In 1892 M. Garisoain of Bayonne, France stilt-walked 4.97 miles into Biarritz in 42 min to average 7.10 mph.

In 1891 Sylvain Dornon stilt-walked from Paris to Moscow via Vilno in 50 stages for the 1,830 miles. Another source gives his time as 58 days.

The endurance record is 3,008 miles by Joe Bowen from Los Angeles to Bowen, Ky, Feb 20-July 26, 1980.

Masahami Tatsushiko (Japan), 28, ran 100 meters on 1-ft-high stilts in 14.5 sec in Tokyo on March 30, 1980.

**Stowaway.** The most rugged stowaway was Socarras Ramirez, who escaped from Cuba June 4, 1969, by stowing away in an unpressurized



**ALL TIED UP:** To make the world's largest string ball, Francis Johnson of Darwin, Minn, has been adding to this ball until now, 40 ft around, it needs its own house. (*Minneapolis Star Tribune*)



**LIFTING WITH TEETH:** Joe Ponder of Love Valley, NC, prides himself on his strong teeth, claiming he should be recognized as the world recordholder. Here he is proving he can lift a 606-lb pumpkin with teeth alone. (*Mark S. Wexler*)

wheel well in the starboard wing of a Douglas DC-8 in a 5,600-mile Iberia Airlines flight from Havana to Madrid. He survived 8 hours at 30,000 ft where temperatures were  $-8^{\circ}\text{F}$ .

**Stretcher Bearing.** The longest recorded carry of a stretcher case with a 140-lb "body" is 127 miles in 45 hours 45 min by two 4-man teams from the Sri Chinmoy marathon team of Jamaica, NY, Apr 17-19, 1981.

**String Ball.** The largest ball of string on record is one of 12 ft 9 in in diameter, 40 ft in circumference and weighing 10 tons, amassed by Francis A. Johnson of Darwin, Minn, between 1950 and 1978.

**Submergence.** The longest submergence under water (excluding the use of diving bells) is 147 hours 15 min established by Robert Ingolia in tests in which the US Navy received all the data in 1961.

The *continuous* duration record (i.e. no rest breaks) for SCUBA (self-contained underwater breathing apparatus) without surface air hoses, is 212 hours 30 min by Michael Stevens of Birmingham, Eng. in a Royal Navy tank, Feb 14-23, 1986.

Measures have to be taken to reduce the risk of severe desquamation in such endurance trials.

**Swinging.** The record duration for continuous swinging in a hammock is 240 hours by John David Joyce, 19, of Bryan, Tex, July 29-Aug 8, 1986.

**Tailoring.** The highest speed in making a 3-piece wool suit, starting with shearing the sheep and ending with a finished article, is 1 hour 34 min 33.42 sec by 65 members of the Melbourne College of Textiles, Pascoe Vale, Australia, on June 24, 1982. The catching and fleecing took 2 min 21 sec; the carding, spinning, weaving and tailoring occupied the remaining time.

**Talking.** The record for non-stop talking has been 200 hours by S. E. Jayaraman, 54, at the Agaram Gandhi Statue, Madras, India Feb 3-11, 1987.

The women's non-stop talking record was set by Mrs Mary E. Davis, who, Sept 2-7, 1958, started talking at a radio station in Buffalo, NY, and did not draw breath until 110 hours 30 min 5 sec later in Tulsa, Okla.

Andy Page, 23, a Methodist lay preacher at Woolton, Liverpool, Eng, gave an after-dinner speech lasting 24 hours July 1-2, 1986, at the city's St George Hotel.

**Pulling with Teeth.** The "strongest teeth in the world" belong to John "Hercules" Massis (b Wilfried Oscar Morbée, June 4, 1940) of Oostakker, Belgium, who at Evrey, France on March 19, 1977, raised a weight of 513½ lb to a height of 6 in from the ground with a bit in his teeth. Massis prevented a helicopter from taking off using only a mouth harness in Los Angeles Apr 7, 1979, for the "Guinness Spectacular" ABC-TV show.

Joe Ponder of Love Valley, NC, claims he has stronger teeth than

## Stunts and Miscellaneous End



lifted a 606-lb pumpkin, held back a 55,000 lb truck, a 92,000-lb train, and dangled from a helicopter using only his teeth.

### Throwing. (See Games, Chapter 12.)

**Tightrope and Wire Walkers.** In this field, two names stand out—Charles Blondin (1824–97) and Steven McPeak (b Apr 21, 1945). Blondin, born in France (real name Jean-Francois Gravelet) became famous for his feats of crossing Niagara Falls between the US and Canada on a rope, and McPeak traveled (and still travels) all over the world setting up high cables to cross.

No one had crossed the 165-ft-high Niagara Falls before Blondin in 1859. On June 30, Blondin started out. A short way out, Blondin stopped, lay down on his back full length on the rope, then raised himself on one leg. The crossing took 20 minutes in all.

But his supreme act was to carry his 145-lb friend and manager, Harry Colcord, on his back while crossing. (The photo on the next page testifies to the truth of this.)

McPeak, who makes his home in Las Vegas, Nev, and earns his living as a steel rigger and stage set designer, has now tied Blondin's record for carrying a person on his back. He practiced 300 times across Hoover Dam in Nevada on a 1,620-ft-long cable before carrying his 114-lb fiancée, Carly, on his back in Feb 1983. In the middle of the walk, they sat down on the wire and by intercom radio the pair got married by a minister on the ground. Then they traversed the rest of the cable.

McPeak performed the highest high-wire act by crossing on a thin wire he had rigged between two peaks of the Zugspitze on the W German-Austrian border on June 25, 1981, at a height of 3,150 ft above the ground below, and 9,718 ft above sea level. He needed 181 steps to cross the snow-covered gorge.

On the same day he finished the longest wire walk, (beating his previous record set in Rio de Janeiro, Brazil), by walking on a 46.5-cm diameter cable up the Zugspitze cable car lift in 3 stints aggregating 5 hours 4 min for a total of 7,485 ft, with a one-day walk of 3,117 ft. The gradient was above 30°. At his highest, McPeak was 2,313 ft higher than at the cable car base.

The greatest height above street level in a high-wire performance was when Philippe Petit, 24, of Nemours, France crossed on a wire 1,350 ft above the street in NYC between the newly constructed twin towers of the World Trade Center on Aug 7, 1974. He shot the 140-ft-long wire across by bow and arrow. He was charged with criminal trespass after a 75-min display of at least 7 crossings. The police psychiatrist's verdict was, "Anyone who does this 110 stories up can't be entirely right."

The tightrope endurance record is 185 days by Henri Rochetaud (b 1926) of France on a wire 394 ft long, 82 ft above a supermarket in St Etienne, France, March 28–Sept 29, 1973. His ability to sleep on the wire has left doctors puzzled.

Steven G. Wallenda, 33, walked 2.36 mi on a wire 250 ft long 32 ft high at North Port, Fla, on Mar 26, 1983 in 3 hours 31 min.

**Tire Supporting.** The greatest number of car tires supported in a free-standing "lift" at one time is 96 by Gary Windebank of Romsey,



#### TIGHTROPE WALKER ▲

**SUPREME:** Steve McPeak of Las Vegas has conquered mountains by walking up their cable ropeways—barefoot! Here he is almost to the top of the 9,178-ft-high Zugspitze on the W German-Austrian border in 1981. For height, this beat his Rio de Janeiro climb up Sugar Loaf Mt. and every other tightrope record.



#### — ROPE-WALKING MARVEL

Charles Blondin was such an intrepid tightrope artist that he crossed Niagara Falls nine times in 1859-60. After a few crossings he carried his 115-lb friend and agent, Harry Colcord, on his back (shown here) three times. (Frank Perle)



England in Feb 1984. The total weight was 1,440 lb. The tires were Michelin XZX 155 x 13.

**Tobogganning.** The most people on a sled is 132, a record claimed by Lakeland College of Vermilion, Alberta, Canada, when that many students rode downhill on a 102-ft 7 3/8-inch-long toboggan on Mar 16, 1987.

**Tree Climbing.** The fastest climb up a 100-ft fir spar pole and return to the ground is one of 27.16 sec by Ed Johnson of Victoria, BC, Canada in July 1982 at the Lumberjack World Championships in Hayward, Wis. The fastest time up a 29.5-ft coconut tree barefoot is 4.88 sec by Fuatai Solo, 17, in Sukuna Park, Fiji, Aug 22, 1980.

**Tree Sitting.** Timothy Roy entered a tree house in Norwalk, Calif on July 4, 1982, and did not come down for 431 days, on Sept 8, 1983.

**Typing, Fastest.** The highest recorded speeds attained with a ten-word penalty per error on a manual machine are:

One Minute: 170 words, Margaret Owen (US) (Underwood Stan-



**TIRE SUPPORTER:**  
Standing up under 96  
tires piled on top of him  
like a clothes tree, Gary  
Windebank of Romsey,  
Eng, survived under a  
total of 1,440 lb.



**132 TOBOGGANNEERS** managed to get on one 102-ft-7 $\frac{7}{8}$ -in-long sled at Lakeland College, Vermilion, Alberta, Canada.



**UNDERWATER VIOLINIST:** Mark Gottlieb of Olympia, Wash, repeats his record rendition of Handel's "Water Music" for David Frost's "Guinness" TV show



**WALKING ON WATER:** Wearing his 11-ft-long Skijaks (water ski shoes) and paddling, David Kiner of Slingerlands, NY, walked down the Hudson River from Albany to Battery Park, NYC, 155 mi in 5 $\frac{1}{2}$  days

dard), NYC, Oct 21, 1918. Five Minutes: 176 wpm net by Mrs Carole Forristall Waldschlager Bechen in Dixon, Ill, 1959.

One Hour: 147 words (net rate per min), Albert Tanğora (US) (Underwood Standard), Oct 22, 1923.

*Records on electric and computer-driven typewriters cannot be compared with any accuracy.*

**Typing, Longest.** The longest duration typing marathon on a manual machine is 123 hours by Shambhoo Govind Anbhawane of Bombay, India Aug 18-23, 1986 on a Godrej Prima manual machine in Bombay, aggregating 806,000 strokes. Mike Howell, a 23-year-old blind office worker from Greenfield, Oldham, Greater Manchester, England, Nov 25-30, 1969, typed 120 hours 15 minutes on an Olympia manual typewriter in Liverpool. In aggregating 561,006 strokes he performed a weight movement of 2,780 tons plus a further 174 tons in moving the carriage on line spacing.

Les Stewart of Mudjimba Beach, Queensland, Australia has typed the numbers 1 to 467,000 *in words* on 9,230 long sheets as of Feb 12, 1987. His target is to become a "millionaire".

**Underwater Cycling.** Thirty-two certified SCUBA divers in 60 hours, Nov 27-29, 1981, rode a submarine tricycle 64.96 miles on the bottom of Amphihigh School pool, Tucson, Ariz, to raise money for a charity. A relay team of 32 bicycled underwater for 87.81 miles in 72 hours in Norvik, Norway, Mar 28-31, 1984.

**Underwater Violinists.** The pioneer violinist to surmount the problems of playing the violin underwater was Mark Gottlieb. Submerged in Evergreen State College swimming pool in Olympia, Wash, in Mar 1975 he gave a submarine rendition of Handel's *Water Music*. His most intractable problem was his underwater *détaché*. On Oct 7, 1979 the first underwater quartet performed in the *Challenge the Guinness* TV show on Channel 7 in Tokyo, Japan.

**Waiters' Marathon.** Beverly Hills restaurateur Roger Bourbon (b May 10, 1948) ran a full marathon of 26 mi 385 yards in full uniform in London, England, May 9, 1982, carrying a free-standing open bottle on a tray (gross weight 3 lb 2 oz) in 2 hours 47 min, using the same hand the whole way.

**Walking-on-Hands.** The duration record for walking-on-hands is 871 miles by Johann Hurlinger of Austria, who, in 55 daily 10-hour stints, averaged 1.58 mph from Vienna to Paris in 1900.

Thomas P. Hunt of the USAF Academy, Colorado Springs, completed a 50-meter inverted sprint in 18.4 sec in Tokyo, Japan on Sep 22, 1979.

Four men (Bob Sutton, Danny Scannell, Phil Johnson and John Hawkins) relayed a mile in Oak Ridge, Tenn, on Mar 13, 1983 in 31 min 15.8 sec.

**Walking on Water.** Using outsize shoes-cum-floats Fritz Weber walked on the Main River, W Germany from Bayreuth over 185 mi to Mainz Sept 1 to Oct 15, 1983, an average of 4 mi per day.

David Kiner, 41, of Slingerlands, NY, walked from Albany to

#### **WALL PRESS:**

Backing a human body with an arched spine against a wall and keeping it there for more than 1¼ hours is the record set by Kevin DeWitt of Kennewick, Wash, in Dec 1986. (Bob Braudy/*Trinity Herald*)



Battery Park, NYC, on the Hudson River, 155 mi in 5½ days, June 22–27, 1987, an average of 1.17 mph. He used 11-ft-long water ski shoes, called Skijaks, made of polyethylene, and a twin-bladed paddle. (See photo.)

**Wall Press.** Sitting unsupported, back 90° flat against a wall, looks simple, but the longest anyone can stay in that position (see photo) is 1 hour, 16 min, 12 sec, a record set by Kevin DeWitt of Kennewick, Wash in Dec 1986.

**Weather Balloon Blowing.** The inflation by lung power of a standard 1,000 gram meteorological balloon to a diameter of 8 ft against time was achieved by Nicholas Berkeley Mason in 57 min 7 sec for a Fuji TV program in Tokyo on Mar 9, 1986.

**Wheelbarrow Pushing.** The heaviest loaded one-wheeled barrow pushed for a minimum 200 level feet is one loaded with bricks weighing a gross 8,275 lb through 243 ft by John Sarich at London, Ont, Canada on Feb 19, 1987.

**Wheelbarrow Racing.** The fastest time reached for a 1-mile wheelbarrow race is 4 min 50.29 sec by John Coates and Brian Rhodes of Richmond, BC, Canada, at the Ladner Centennial Sports Festival, Delta, BC, July 9, 1983.

**Wheelies.** See *Motorcycle and Car Stunting*, p. 463.

**Whip Cracking.** The longest stock whip ever "cracked" (*i.e.*, the end made to travel above the speed of sound—760 mph) is one of 140 ft (excluding the handle), wielded by Garry Brophy at Adelaide, Australia on Oct 31, 1985.

**Whistling Loudest and Longest.** Roy Lomas (GB) achieved 122.5 decibels at 2½ meters in the Deadroom at the BBC Manchester (Eng), Studios on Dec 19, 1983. The whistling marathon record is by David Frank of Toronto, Canada, who completed 30 hours 10 min nonstop at the Annapurna Restaurant, Toronto, Nov 23–24, 1985.

**Window Cleaning.** The fastest time to clean (without a smear) 3 standard 40.94 × 45.39-in office windows with an 11.8-in-long squeegee and 15.83 pints of water was 18.92 sec by Roy Ridley of Sydney, Australia, in a contest on Oct 19, 1984.

**Wire Slide.** The greatest distance recorded in a wire slide is from a height of 175 ft over a distance of 300 ft by Grant Page with Bob Woodham over his shoulder across the Australian landmark known as "The Gap" for the filmed episode in "The Stunt Men" in 1972.

**Wood Cutting and Pole Climbing.** World championships for lumberjacks have been held since 1874, first in Tasmania, Australia, since 1960 in Hayward, Wis, and more recently in Albany, Ore. Records at the several sites are not precisely comparable as, for example, the poles may have or have no bark when climbed, and the logs to be sawed or chopped may be of different hardnesses. The standard for chopping is white pine of 14-in diameter, and 20-in for sawing.

The record for speed climbing of a new pole with bark is 30.17 sec by Guy German of Sitka, Alaska, set at Albany, Ore, in July 1987, beating the previous record of 30.92 sec set in 1986 at the same site.

In tree topping, Guy German was again the recordholder, winning for the second year in a row by climbing and cutting the top off a tree of 40-in diameter and returning to the ground in 1 min 10.87 sec.

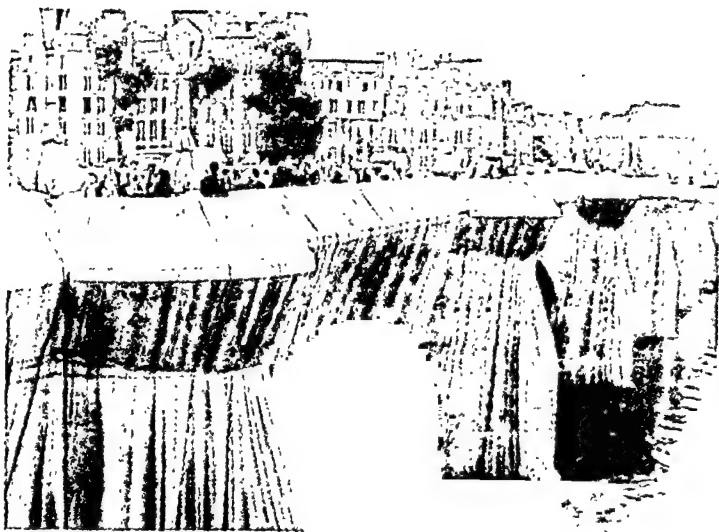
The world record of 7.85 sec for the hot power saw is held by Mel Lentz of Creswell, Ore, who has won 3 times at Hayward and 7 times at Albany, but not in 1987. His father won 8 times.

Mel Lentz also holds the record of 25.38 sec for the standing block chop, 18.66 sec for the underhand block chop, and has been voted all-around champion. He has been among the winners in contests also for horizontal block chop, springboard chop, single bucking, and more.

**Worm Charming** (see p. 101).

**Wrapping.** Christo, the sculptor who has made gigantic curtains and draped islands (see pages 233), in 1985 wrapped the famous bridge, Pont Neuf, in Paris with 440,000 sq ft of polyamide fabric and 42,900 ft of rope.

**Writing Small.** In 1926 an account was published of Alfred



**WRAPPING AS AN ART FORM:** Christo, the Bulgarian-born sculptor, when he isn't curtaining valleys or draping islands, is wrapping bridges. Here he is adorning Paris' famous Pont Neuf with woven fabric and rope. The French gave him permission. (Photo © Wolfgang Volz)

McEwen's pantograph record in which the 56-word version of the Lord's Prayer was written by diamond point on glass in the space of  $0.0016 \times 0.0008$  in.

Frank C. Watts of Felmingham, Norfolk, England, demonstrated for photographers, on Jan 24, 1968, the ability, without mechanical or optical aids, to write the Lord's Prayer 34 times (9,452 letters) within the size of a definitive postage stamp ( $0.84 \times 0.71$  in).

Fares Malaeb of Wetaskiwin, Alberta, Canada, claims to have copied a book of 160 pages on a sheet of silver  $5 \times 7$  cm ( $2 \times 2\frac{3}{4}$  in)—a total of 17,000–20,000 words.

Tsutomu Ishii of Tokyo demonstrated his ability to write the names of 44 countries (184 letters) on a single grain of rice, and the words TOKYO JAPAN in Japanese on a human hair in Apr 1983.

**Writing Under Handicap.** The ultimate feat in "funny writing" would appear to be the ability to write extemporaneously and decipherably backwards, upside down, laterally inverted (mirror-style) while blindfolded, with both hands simultaneously. Three claims to this ability with both hands and feet simultaneously, by Mrs Carolyn Webb of Thirlmere, NSW, Aust, Mrs Judy Hall of Chesterfield, Va, and Robert Gray of Toronto, Canada are outstanding, but have not been witnessed in the act by our staff.

**Yodeling.** The most protracted yodel on record was that of Errol Bird for 26 hours in Lisburn, N Ireland, Sept 27–28, 1984. Yodeling has been defined as "repeated rapid changes f



falsetto and back again." The most rapid recorded is 5 tones (3 falsetto) in 1.9 sec by Donn Reynolds of Canada on July 25, 1984.

**Yo-Yo.** Yo-yo was a toy in Grecian times and is depicted on a bowl dated 450 bc. It was also a Filipino jungle fighting weapon recorded in the 16th century weighing 4 lb with a 20-ft thong. The word means "come-come." Though illustrated in a book in 1891 as a bandalore, the yo-yo did not become a craze until it was marketed by Donald F. Duncan of Chicago in 1926. The most difficult modern yo-yo trick is the "Whirlwind," incorporating both inside and outside horizontal loop-the-loops.

The individual continuous endurance record is 121 hours 10 min by Bob Brown of Boston, Mass June 24-29, 1985.

Dr Allen Bussey in Waco, Tex on Apr 23, 1977 completed 20,302 loops in 3 hours (including 6,886 in a single 60-min period). He used a Duncan Imperial with a 34½-in nylon string. Spins of 8,000 rpm have been recorded.

The largest yo-yo ever constructed was one by Dr Tom Kuhn weighing 256 lb, test-launched from a 150-ft crane in San Francisco on Oct 13, 1979.

## EATING RECORDS

While no healthy person has been reported to have succumbed in any contest for eating non-toxic food or drinking non-alcoholic drinks, such attempts, from a medical point of view, must be regarded as *extremely* inadvisable, particularly among young people. Gastronomic record attempts should aim at improving the *rate* of consumption, rather than the volume. This book will not list any records involving the consumption of more than 2 liters (approximately 2 quarts) of beer or any at all involving liquor. Nor will this book list records for potentially dangerous categories such as consuming live ants, goldfish, quantities of chewing gum or marshmallows, or raw eggs in shells. The ultimate in stupidity—the eating of a bicycle—has, however, been recorded since it is unlikely to attract competition.

The greatest omnivore is Michel Lotito (b 1950) of Grenoble, France, known as Monsieur Mangetout, who has been eating metal and glass since 1959. Gastroenterologists have X-rayed his stomach and have described his ability to consume 2 lb of metal per day as unique. His diet since 1966 has included 10 bicycles, a supermarket cart (in 4½ days), 7 TV sets, 6 chandeliers and a low-calorie Cessna light aircraft, which he ate in Caracas, Venezuela. He is said to have provided the only example in history of where a coffin (handle and all) ended up inside a man.

*Liquidizing, processing or puréeing foodstuffs is not permitted. However, drinking during attempts is permissible.*

Specific records have been claimed as follows:

**Baked Beans.** 2,780 cold beans one by one, with a cocktail stick, in 30 min by Karen Stevenson of Merseyside, Eng, Apr 4, 1981.

**Bananas.** 17 (edible weight min 4½ oz each) in 2 min by Dr Ronald L. Alkana at the University of California, Irvine on Dec 7, 1973.

**Beer.** Steven Petrosino drank one liter of beer in 1.3 sec on June 22, 1977, at "The Gingerbreadman," in Carlisle, Pa.

Peter G. Dowdeswell (b London, July 29, 1940) of Earls Barton, Northants, Eng, drank 2 liters in 6 sec on Feb 7, 1975. He also holds the speed record for consuming 2 Imp pints, in 2.3 sec, June 11, 1975, and for 3 Imp pints in 5.0 sec on July 6, 1985.

**Champagne.** 1,000 bottles per year by Bobby Acland of the "Black Raven," Bishopsgate, London.

**Cheese.** 16 oz of hard English cheddar in 1 min 13 sec by Peter Dowdeswell (see photo) in Earls Barton, England, on July 14, 1978.

**Chicken.** 27 (2-lb pullets) by "Bozo" Miller at a sitting at Trader Vic's, San Francisco in 1963. Also, 4 lb 10 oz in 10 min 37 sec by Valentin Florentino Muñoz Muñoz, Vizcaya, Spain, Apr 27, 1986.

Sean Barry ate 3 lb 12 oz of chicken in 8 min 5 sec in Cheltenham, Eng on July 5, 1986.

**Clams.** 424 Little Necks in 8 min by Dave Barnes at Port Townsend Bay, Wash, on May 3, 1975.

**Doughnuts.** 12¾ (weighing 51 oz) in 5 min 46 sec by James Wirth, and 13 (52 oz) in 6 min 1.5 sec by John Haight, both at the Sheraton Inn, Canandaigua, NY, Mar 3, 1981.

**Eels.** 1 lb of elvers (1,300) in 13.7 sec by Peter Dowdeswell (see photo) at Reeves Club, Bristol, England, on Oct 20, 1978.

**Eggs.** (Hard-boiled) 14 in 14.42 sec by John Kenmuir on Scottish television on Apr 17, 1987. (Soft-boiled) 38 in 75 sec by Peter Dowdeswell in Kilmarnock, Scotland, on May 28, 1984. (Raw, without shells) 13 in 1.0 sec by Peter Dowdeswell in Kilmarnock on May 16, 1984.

**Frankfurters.** 23 (2-oz) without rolls, in 3 min 10 sec by Lynda Kuerth, 21, at Veterans Stadium, Philadelphia, on July 12, 1977.

**Gherkins.** 1 lb in 41.6 sec by Peter Dowdeswell at Ronelles Discotheque, Eng, on Feb 8, 1986.

**Grapes.** 3 lb 1 oz in 34.6 sec by Jim Ellis of Montrose, Mich, on May 30, 1976.

**Hamburgers.** 21 hamburgers (weighing 3½ oz each or 4½ lb of meat) and buns in 9 min 42 sec by Peter Dowdeswell at Birmingham, Eng, on June 30, 1984.



**Milk.** One Imperial quart (1.2 US quarts) in 3.2 sec by Peter Dowdeswell at Dudley Top Rank Club, England on May 31, 1975.

**Oysters.** Edible mass of 288 (6 lb) in 1 min 33 sec by Tommy "Muskrat" Greene in Annapolis, Md, on July 6, 1985.

The record for opening oysters is 100 in 2 min 42.74 sec by Mike Racz in Invercargill, New Zealand, on June 25, 1986.

**Pancakes.** 62 (each 6 in in diameter, buttered and with syrup) in 6 min 58.5 sec by Peter Dowdeswell in Northampton, England on Feb 9, 1977.

**Peanuts.** 100 (whole, out of the shell) singly in 46 sec by Jim Kornitzer, 21, at Brighton, England on Aug 1, 1979.

**Peas.** 7,175 petit pois one by one in 60 min using chopsticks by Mrs Janet Harris, Seal Hotel, Selsey, Eng, on Aug 16, 1984.

**Pickled Onions.** 91 (total weight 30 oz) in 1 min 8 sec by Pat Donahue in Victoria, BC, Canada, on March 9, 1978.

**Pizza.** 1.8 lb in 5 min 23 sec by Geir Storvann of Drammen, Norway, on Aug 24, 1984 at Karl Johans Gate, Oslo.

**Potato Chips.** 30 2-oz bags in 24 min 33.6 sec, without a drink, by Paul G. Tully of Brisbane University, Australia, in May 1969.

**Potatoes.** 3 lb in 1 min 22 sec by Peter Dowdeswell in Earls Barton, England on Aug 25, 1978.

**Prunes.** 144 in 31.27 sec by Peter Dowdeswell at Silver Stadium, Rochester, NY, on June 20, 1986.

**Ravioli.** 5 lb (170 squares) in 5 min 34 sec by Peter Dowdeswell (see above) in Suffolk, Eng on Sept 25, 1983.

**Sandwiches.** 40 (jam and butter,  $6 \times 3\frac{3}{4} \times \frac{1}{2}$  in) in 17 min 53.9 sec by Peter Dowdeswell on Oct 17, 1977, at the Donut Shop, Reedley, Calif.

**Sausage Meat.** 5 lb 12 $\frac{3}{4}$  oz (96 pieces) in 4 min 29 sec by Peter Dowdeswell on Fuji TV, Tokyo, Japan on Feb 24, 1985. No "Hot Dog" contest results have been remotely comparable.

**Shellfish.** 100 (unshelled) whelks in 5 min 17 sec by John Fletcher in Liverpool St Station, London on Aug 18, 1983.

**Shrimps.** 3 lb in 3 min 10 sec by Peter Dowdeswell at Weymouth, Dorset, Eng, on Aug 7, 1985.

**Snails.** 38.8 oz in 1 min 5.6 sec by Andoni Basterrechea Dominguez in Vizcaya, Spain on Apr 27, 1986.



dollars was worth about 17 times as much in purchasing power as it is today.

The riches of most of the world's remaining 29 monarchs are national rather than personal assets. The least fettered monarch is H M Sir Muda Hassanal Bolkiah Mu'izzaddin Waddaulah, the Sultan of Brunei (b July 15, 1946). He appointed himself Prime Minister, Finance Minister and Home Affairs Minister on Jan 1, 1984. The annual oil revenue of Brunei is \$3,780 million and its foreign reserves are \$14,000 million, all of which are effectively at his personal disposal.

## **Richest People**

The US was estimated to have some 832,500 millionaire families in early 1985 with the million mark estimated for mid-1987.

The richest person in the US has been Gordon Peter Getty (b 1930), fourth son of Jean Paul Getty (by his fourth wife, Ann Rork) and sole trustee of the Sarah C. Getty Trust, valued in Sept 1984 at \$4,100 million, but reduced by estate taxes to under \$1 billion by 1986.

*Forbes Magazine* listed 13 billionaires in 1985, headed by Sam Moore Walton, 67, of Wal-Mart Stores, Bentonville, Ark.

The richest man in Great Britain is Sir John Moores (b Jan 25, 1896), the co-founder of football pools, who is estimated to be worth £1,600 million (\$2,400,000,000).

## **Highest Income**

The greatest incomes derive from the collection of royalties per barrel by rulers of oil-rich sheikhdoms, who have not abrogated personal entitlement. Shaikh Zayid ibn Sultan an-Nuhayan (b 1918), head of state of the United Arab Emirates, arguably has title to some \$9,000 million of the country's annual gross national product.

The highest gross income ever achieved in a single year by a private citizen is an estimated \$105 million in 1927 by the Neapolitan-born gangster Alphonse ("Scarface Al") Capone (1899-1947). This was derived from illegal liquor trading and alky-cookers (illicit stills), gambling establishments, dog tracks, dance halls, "protection" rackets and vice. On his business card, Capone described himself as a "Second Hand Furniture Dealer."

Paul McCartney reputedly earned in excess of £25 million (\$57.5 million) in the years since 1979, for the highest gross income by a Briton.

## **Highest Salary**

The highest salary in 1985 was reported to be \$12.7 million paid to Victor Posner, chairman of the board of DWG Corp of Miami Beach, Fla. The highest salary, bonus and stock option earnings ever reported were paid to the board chairman of Federal Express, Frederick W. Smith, namely \$51,544,000 in 1982.

## **Youngest Millionaire**

The youngest person ever to accumulate \$1 million dollars was the child film actor Jackie Coogan (b Los Angeles, Oct 26, 1914), co-star with (Sir) Charles Chaplin (1889-1977) in "The Kid," made in 1920.



## Richest Families

It has been tentatively estimated that the combined value of the assets nominally controlled by the Du Pont family of some 1,600 members may be on the order of \$150 billion. The family arrived from France on Jan 1, 1800. Capital from Pierre Du Pont (1730-1817) enabled his son Eleuthère Irénée Du Pont to start his explosives company (E. I. Du Pont).

It was estimated in 1984 that both sons and both daughters of H. L. (Haroldson Lafayette) Hunt, the oil man, possessed fortunes in excess of \$1 billion each.

## Biggest Dowry

The largest recorded dowry was that of Elena Patiño, daughter of Don Simón Iturbi Patiño (1861-1947), the Bolivian tin millionaire, who in 1929 bestowed \$22,400,000 from a fortune at one time estimated to be worth \$350 million.

## Greatest Miser

If meanness is measurable as a ratio between expendable assets and expenditure then Henrietta (Hetty) Howland Green (*née* Robinson) (1835-1916), who kept a balance of over \$31,400,000 in one bank alone, was the all-time world champion. She was so stingy that her son had to have his leg amputated because of the delays in finding a free medical clinic. She herself lived off cold oatmeal because she was too thrifty to heat it. Her estate proved to be worth \$95 million.

## Return of Money

Jim Priceman, 44, assistant cashier at Doft & Co Inc, returned an envelope containing \$37.1 million in negotiable bearer certificates found outside 110 Wall Street to A. G. Becker, Inc, NYC on Apr 6, 1982. In announcing a reward of \$250, the Becker Company was acclaimed as being "all heart."

The largest amount of cash ever found and returned to its owners was \$500,000 found by Lowell Elliott, 61, on his farm in Peru. Ind It had been dropped in June 1972 by a parachuting hijacker

## Greatest Bequests

The greatest bequests in a lifetime of a millionaire were those of the late John Davison Rockefeller (1839-1937), who gave away sums totaling \$750 million.

The Scottish-born US citizen Andrew Carnegie (1835-1919) is estimated to have made benefactions totaling \$350 million in the last 18 years of his life. These included 7,689 church organs and 2,811 libraries. He had started in a bobbin factory at \$1.20 a week.

The largest bequest made in the history of philanthropy was made by Ryoichi Sasakawa, chairman of the Japanese Shipbuilding Industry Foundation, who made total donations of 405,732,907,012 yen (approx \$1,741,000,000) during the years 1962-84. This exceeded the \$500 million gift, announced on Dec 12, 1955, to 4,157 educational and other institutions by the Ford Foundation (established 1936) of NYC.



## 2. HONORS, DECORATIONS AND AWARDS

### Highest US Decoration

The highest US military decoration is the Congressional Medal of Honor. Five marines received both the Army and Navy Medals of Honor for the same acts in 1918, and 14 officers and men from 1863 to 1915 received the medal on two occasions.

### Top Jet Ace

The greatest number of kills in jet-to-jet battles is 16 by Capt Joseph Christopher McConnell, Jr (USAF) (b Dover, NH, Jan 30, 1922) in the Korean War (1950-53). He was killed on Aug 25, 1954. It is possible that an Israeli ace may have surpassed this total in the period 1967-70, but the identity of pilots is subject to strict security.

### Top Woman Ace

The record score for any woman fighter pilot is 12 by Jr Lt Lydia

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### TOP SCORING AIR ACES

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The "scores" of air aces in both wars are still hotly disputed. The highest figures officially attributed have been:

<i>Country</i>	<i>World War I</i> 1914-1918	<i>World War II</i> 1939-1945
World	75 Col René Paul Fonck (France) Gr Cordon, L. d'H., C. de G. (26 palms) Med. Mil (Belge) (d. 1953)*	352 Major Erich Hartmann (Germany)
US	26 Capt Edward Vernon Rickenbacker M.H., D.S.C. (7 o.l.c.), L. d'H., C. de G.	40 Major Richard I. Bong, M.H., D.S.C., S.S., D.F.C. (6 o.l.c.), A.M. (11 o.l.c.).
Canada	72 Lt-Col William Avery Bishop, V.C., C.B., D.S.O. and bar, M.C., D.F.C., L. d'H., C. de G.	31½ Sq-Ldr George F. Beurling, D.S.O., D.F.C., D.F.M. and bar.

\*A total of 80 was attributed to Rittmeister Manfred Freiherr (Baron) von Richthofen (Germany) but fewer than 60 of these could be verified from German records. Col Fonck unofficially has been credited with as high a score as 125. The German high score is 62 by Col-Gen Ernst Udet.

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Litvak (USSR) in the Eastern Front campaign of 1941-43. She was killed in action on Aug 1, 1943.

## Submarine Warfare

The largest target ever sunk by a submarine was the Japanese aircraft carrier *Shinano* (59,000 tons) by the *USS Archerfish* (Commander Joseph F. Enright, USN) Nov 29, 1944.

## Most Statues

The record for raising statues to oneself was set by Generalissimo Dr Rafael Leónidas Trujillo y Molina (1891-1961), a former President of the Dominican Republic. In March 1960 a count showed that there were "over 2,000." The country's highest mountain was named Pico Trujillo (now Pico Duarte). One province was called Trujillo and another Trujillo Valdez. The capital was named Ciudad Trujillo (Trujillo City) in 1936, but reverted to its old name of Santo Domingo on Nov 23, 1961. Trujillo was assassinated in a car ambush on May 30, 1961, and May 30 is now celebrated annually as a public holiday.

The man to whom most statues have been raised is undoubtedly Buddha. The 20th century champion is Vladimir Ilyich Ulyanov, *alias* Lenin (1870-1924), busts of whom have been mass-produced. Busts

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## MOST CLUSTERS AND GOLD STARS

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Navy Cross	5 gold stars	Lt Gen Lewis B. Puller, USMC
Distinguished Service Cross	7 clusters	Capt Edward Rickenbacker (d 1973)
Silver Star	8 clusters	Col David H. Hackworth, USA
Distinguished Flying Cross	11 clusters	Col Francis S. Gabreski, USAF
	11 gold stars	Maj Charles Carr
Distinguished Service Medal (Army)	4 clusters	Gen of the Army Douglas MacArthur (also one Naval award)
		Gen of the Army Dwight D. Eisenhower
	3 clusters	Gen Lyman L. Lemnitzer (also one USN and one USAF award)
Distinguished Service Medal (Navy)	3 gold stars	Fleet Adm William F. Halsey
Legion of Merit	5 clusters	Marine Gen Holland M. Smith
Purple Heart	9 clusters	Maj Gen Richard Steinbach
		Sgt Raymond E. Turva

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**MOST HONORARY DEGREES:** The Rev Father Theodore M. Hesburgh of Notre Dame University garnered 100 degrees, 1954-86, to set a new record.



of Mao Tse-tung (1893-1976) and Ho Chi Minh (1890-1969) have also been mass-produced.

### Most Decorated Soldier

Maj Audie Murphy (1924-71) was the most decorated soldier in World War II, receiving the Medal of Honor, the Silver Star with 2 oak leaf clusters, the Bronze Star with an oak leaf cluster, the Distinguished Service Cross, the French Croix de Guerre, the Legion of Merit, the Purple Heart with 2 oak leaf clusters, and the French Légion d'Honneur.

### Most Honorary Degrees

The greatest number of honorary degrees awarded to any individual is 100, given to Rev Father Theodore M. Hesburgh (b 1918), president of the University of Notre Dame, South Bend, Ind. These were accumulated from 1954 through June 1986.

### Nobel Prize Winners

The Nobel Foundation of \$8,960,000 was set up under the will of Alfred Bernhard Nobel (1833-96), the unmarried Swedish chemist and chemical engineer who invented dynamite in 1866. The Nobel Prizes are presented annually on Dec 10, the anniversary of Nobel's death and the festival day of the Foundation. Since the first Prizes were awarded in 1901, the highest cash value of the award, in each of the six fields of Physics, Chemistry, Medicine and Physiology, Literature, Peace and Economics was \$220,000 (approx) in 1985.

The most awards (3) were won by the International Committee for Red Cross.

Individually, the only person to have won two Prizes outright is Dr Linus Carl Pauling (b Feb 28, 1901), Prof of Chemistry since 1931 at the Calif Institute of Technology, Pasadena, Calif. He was awarded the Chemistry Prize for 1954 and the Peace Prize for 1962. Only three others have won two Prizes. One was Madame Marie Curie (1867-1934), born in Poland as Marja Skłodowska, who shared the 1903 Physics Prize with her husband, Pierre Curie (1859-1906) and Antoine Henri Becquerel (1852-1908), and won the 1911 Chemistry Prize outright. Another was Prof Frederick Sanger (UK) (b Aug 13, 1918) who twice shared the Chemistry Prize (1958 and 1980). The third was Prof John Bardeen (US) (b May 23, 1908) who shared the Physics Prize in 1956 and 1972.

The oldest prizeman was Prof Francis Peyton Rous (b Baltimore, 1879-1970), who worked at the Rockefeller Institute, NYC. He shared the Medicine Prize in 1966, at the age of 87.

The youngest laureate has been Prof Sir William Lawrence Bragg (b Adelaide, South Australia, 1890, d 1971), of the UK, who, at the age of 25, shared the 1915 Physics Prize with his father, Sir William Henry Bragg (1862-1942), for work on X-rays and crystal structures. Bragg and also Theodore William Richards (1868-1928) (US) who won the 1914 Chemistry Prize, carried out their prize work when aged 23. The youngest Literature prizeman was (Joseph) Rudyard Kipling (UK) (1865-1936) at the age of 41, in 1907.

## Who's Who

The longest entry of the 66,000 entries in *Who's Who in America* is that of Dr Glenn T. Seaborg (b Apr 19, 1912), whose record listing of 100 lines compares with the 9-line entry for Ronald Reagan.

In the British *Who's Who*, the longest entry was that of Winston Churchill, who appeared in 67 editions from 1899 (18 lines) and had 211 lines by the 1965 edition. When he died he was replaced by the romantic novelist, Barbara Cartland, who has 130 lines. The youngest entry of those who qualify without hereditary title is Yehudi Menuhin (b NYC, Apr 22, 1916), the concert violinist now living in England, who first appeared in the 1932 edition, aged 15.

## Youngest Award

The youngest age at which an official gallantry award has ever been won is 8 years in the case of Anthony Farrer who was given the Albert Medal on Sept 23, 1916 for fighting off a cougar at Cowichan Lake, Vancouver Island, Canada to save Doreen Ashburnham.

# The Sports World

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## AUTO RACING

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(For more information on this sport and all sports see the *Guinness Sports Record Book*.)

### Earliest Races

There are various conflicting claims, but the first automobile race was the 201-mile Green Bay-to-Madison, Wis., run in 1878, won by an Oshkosh steamer.

In 1887, Count Jules Felix Philippe Albert de Dion de Malfiance (1856-1946) won the *La Velocipede* 19.3-mile race in Paris in a De Dion steam quadricycle in which he is reputed to have exceeded 37 mph.

The first "real" race was from Paris to Bordeaux and back (732 miles) June 11-13, 1895. The winner was Emile Levassor (1844-97) (France) driving a Panhard-Levassor two-seater with a 1.2-liter Daimler engine developing 3½ hp. His time was 48 hours 47 min (average speed 15.01 mph). The first closed-circuit race was held over 5 laps of a mile dirt track at Narragansett Park, Cranston, RI on Sept 7, 1896. It was won by A. H. Whiting, who drove a Riker electric.

The oldest auto race in the world still being regularly run is the R.A.C. Tourist Trophy, first staged on the Isle of Man on Sept 14, 1905. The oldest continental race is the French Grand Prix, first held June 26-27, 1906. The Coppa Florio, in Sicily, has been irregularly held since 1900.

### Fastest Races

The fastest race in the world is the NASCAR Busch Clash, a 125-mile all-out sprint on the 2½-mile 31-degree banked tri-oval at Daytona International Speedway, Daytona Beach, Fla. In the 1979 event, Elzie Wylie "Buddy" Baker (b Jan 25, 1941) of Charlotte, NC, averaged 194.384 mph in an Oldsmobile. Bill Elliott set the world record for a 500 mile race in 1985 when he won at Talladega, Ala, at an average speed of 186.288 mph. The NASCAR qualifying record is 212.809 mph by Bill Elliott (b Oct 8, 1955) in a Ford Thunderbird at Alabama International Motor Speedway, Talladega.



is 223.401 mph by Rick Mears of Bakersfield, Calif, driving a Chevrolet-powered March on the 2-mi Michigan International Speedway, Brooklyn, Mich, July 31, 1986, during the qualifying for the Michigan 500. Mears, in the same car on the same track Nov 17, 1986, was clocked at 233.934 under simulated race conditions and has applied for certification of that time to break his 223.401 record.

The fastest average lap speed on a closed-circuit track by a woman racer is 204.223 by Lyn St. James, (US), in a Mustang Probe on the 2.66-mi Alabama International Motor Speedway in Talladega, Ala, on Nov 26, 1985.

## Le Mans

The greatest distance ever covered in the 24-hour *Grand Prix d'Endurance* (first held May 26-27, 1923) on the old Sarthe circuit (8 miles 650 yd) at Le Mans, France, is 3,314.222 miles by Dr Helmut Marko (b Graz, Austria, Apr 27, 1943) and Jonkheer Gijs van Lennep (b Bloemendaal, Netherlands, March 16, 1942) driving a 4,907-cc flat-12 Porsche 917K Group 5 sports car June 12-13, 1971. The record for the current circuit is 3,161,928 miles (average speed 131.747 mph) in a Porsche 956 June 15-16, 1985 by Klaus Ludwig (W Ger), Paulo Barillo (Italy), and John Winter (W Ger). The race lap record (8.475-mile lap) is 3 min 25.1 sec (average speed 148.61 mph) by Jackie Ickx (Belgium) in a Porsche 962C in 1985. The practice lap record is 3 min 14.8 sec (av. speed 156.62 mph) by Hans Stuck (W Ger) in a Porsche 962C on June 14, 1985.

The most wins by one man is 6 by Jackie Ickx (Belgium), who won in 1969, 75-77 and 81-82.

## Most Successful Drivers

Based on the World Drivers' Championships, inaugurated in 1950, the most successful driver is Juan-Manuel Fangio (b Balcarce, Argentina, June 24, 1911), who won five times in 1951, 54-57. He retired in 1958, after having won 24 Grand Prix races (2 shared) in 51 starts.

The most successful driver in terms of earnings is Darrell Waltrip (b Feb 5, 1947) of Franklin, Tenn, whose career earnings reached \$7,542,785 to May 21, 1987, beating total earnings of Richard Lee Petty (b Randleman, NC, July 2, 1937), who has 200 NASCAR Grand National wins, 1958-85. Petty's best season was 1967 with 27 wins. Geoff Bodine won 55 races in 1978. Bill Elliott holds the single year's record of \$2,044,468 in NASCAR events in 1985.

The most Grand Prix victories is 27 by Jackie Stewart (b June 11, 1939) of Scotland between Sept 12, 1965 and Aug 5, 1973; and by Alain Prost (France) (b Feb 24, 1955) who equaled Stewart's tally on May 17, 1987. Jim Clark (1936-1968) of Scotland shares the record of Grand Prix victories in one year with 7 in 1963; Alain Prost had 7 in 1984. The most Grand Prix starts is 176 (out of a possible 184) between May 18, 1958, and Jan 26, 1975, by (Norman) Graham Hill (1929-1975); Jacques Laffite (France) (b Nov 21, 1943) likewise had 176 starts 1974-86.

The most Grand Prix points won is 420½ by Niki Lauda (Austria) (b Feb 22, 1949) from 1971 to 1985.

In Indy-car racing, A.J. Foyt, of Houston, Tex, who began racing







in 1957, has won 67 races, about 20 more than his nearest competitor through the 1986 season.

## **Youngest and Oldest Grand Prix Winners and Drivers**

The youngest Grand Prix winner was Bruce Leslie McLaren (1937-70) of New Zealand, who won the US Grand Prix at Sebring, Fla, on Dec 12, 1959, aged 22 years 104 days. The oldest Grand Prix winner was Tazio Giorgio Nuvolari (1892-1953) of Italy, who won the Albi Grand Prix at Albi, France, on July 14, 1946, aged 53 years 240 days.

The oldest Grand Prix driver was Louis Alexandre Chiron (Monaco, 1899-1979), who finished 6th in the Monaco Grand Prix on May 22, 1955, aged 55 years 292 days. The youngest Grand Prix driver was Michael Christopher Thackwell (b New Zealand, March 30, 1961) who took part in the Canadian Grand Prix in Sept 28, 1980, aged 19 years 182 days.

## **Oldest and Youngest World Champions**

The oldest was Juan-Manuel Fangio, who won his last World Championship Aug 18, 1957, aged 46 years 55 days. The youngest was Emerson Fittipaldi (b São Paulo, Brazil, Dec 12, 1946) who won his first World Championship Sept 10, 1972, aged 25 years 273 days.

## **Indianapolis 500**

The Indianapolis 500-mile race (200 laps) was inaugurated on May 30, 1911. The most successful drivers have been Anthony Joseph "A. J." Foyt, Jr (b Houston, Tex, Jan 16, 1935), who won in 1961, 64, 67 and 77, and Al Unser, Sr (b May 29, 1939) of Albuquerque, N Mex, who won in 1970, 71, 78 and 87.

The record time is 2 hours 55 min 42.48 sec (average speed 170.722 mph) by Bobby Rahal (US) on May 31, 1986, driving a March Cosworth.

The one-lap record is 218.204 mph by Mario Gabriele Andretti (US) (b Feb 28, 1940) on May 6, 1987.

The qualifying 4-lap record average speed is 216.828 mph, including a one-lap record of 217.581 mph by Rick Mears in a Pennzoil Z-7 with a Cosworth engine on May 10, 1986.

The record prize fund is \$4,001,450 for the 1986 race, the 70th. The individual prize record is the \$581,062.50 won by Bobby Rahal in 1986.

The first and only woman to qualify for and compete in the Indianapolis 500 is Janet Guthrie (b Mar 7, 1938). She passed her rookie test in May 1976, and earned the right to compete in the qualifying rounds, but was unable to win a place on the starting line when the Vollstedt-Offenhauser she drove was withdrawn from the race after repeated mechanical failures. In the 61st running of the Indianapolis 500, in 1977, Guthrie became the first woman to compete, although her car developed mechanical problems which forced her to retire after 27 laps. In 1978, she completed the race, finishing in ninth place after 190 laps.

# Indianapolis 500

Winners since 1946 (all US except where stated):

	Driver	Car	Speed (mph)
1946	George Robson	Thorne Engineering	114.820
1947	Mauri Rose	Blue Crown Special	116.338
1948	Mauri Rose	Blue Crown Special	119.814
1949	Bill Holland	Blue Crown Special	121.327
1950	Johnny Parsons	Wynn Kurtis Kraft	124.002
1951	Lee Wallard	Belanger	126.224
1952	Troy Ruttman	Agajanian	128.922
1953	Bill Vukovich	Fuel Injection	128.740
1954	Bill Vukovich	Fuel Injection	130.840
1955	Bob Sweikert	John Zink Special	128.209
1956	Pat Flaherty	John Zink Special	128.490
1957	Sam Hanks	Belond Exhaust	135.601
1958	Jimmy Bryan	Belond A. P.	133.791
1959	Rodger Ward	Leader Card Special	135.857
1960	Jim Rathmann	Ken-Paul Special	138.767
1961	A. J. Foyt	Bowes Seal Fast	139.130
1962	Rodger Ward	Leader Card Special	140.293
1963	Parnelli Jones	Agajanian Special	143.137
1964	A. J. Foyt	Sheraton-Thompson Special	147.350
1965	Jim Clark (GB)	Lotus-Ford	150.686
1966	Graham Hill (GB)	American Red Ball	144.317
1967	A. J. Foyt	Sheraton-Thompson Special	151.207
1968	Bobby Unser	Rislone Special	152.882
1969	Mario Andretti	STP Oil Treatment Special	156.867
1970	Al Unser, Sr	Johnny Lightning Special	155.749
1971	Al Unser, Sr.	Johnny Lightning Special	157.735
1972	Mark Donohue	Sunoco McLaren	162.962
1973	Gordon Johncock	STP Double Oil Filter	159.036
1974	Johnny Rutherford	McLaren	158.589
1975	Bobby Unser	Jorgensen Eagle	149.213
1976	Johnny Rutherford	Hygain McLaren	148.725
1977	A. J. Foyt	Gilmore Coyote-Foyt	161.331
1978	Al Unser, Sr	Lola-Chapparral Cosworth	161.363
1979	Rick Mears	Penske-Cosworth	158.899
1980	Johnny Rutherford	Chapparral Cosworth	142.862
1981	Bobby Unser	Penske-Cosworth	139.084
1982	Gordon Johncock	Wildcat-Cosworth	162.025
1983	Tom Sneva	March-Cosworth	162.117
1984	Rick Mears	March-Cosworth	163.612
1985	Danny Sullivan	March-Cosworth	152.982
1986	Bobby Rahal	March-Cosworth	170.722
1987	Al Unser, Sr.	March-Cosworth	162.575

## Pit Stop

Bobby Unser (US) took 4 sec to take on fuel on lap 10 of the Indianapolis 500 on May 30, 1976.

## Closest Finishes

The closest finish to a World Championship race occurred when Ayrton Senna (Brazil) beat Nigel Mansell (GB) by 0.014 sec in the Spanish Grand Prix at Jerez de la Frontera Apr 13, 1986.

The closest finish in the Indianapolis 500 was in the 1982 race when winner, Gordon Johncock, crossed the finish line just 0.16 sec before runner-up Rick Mears.

## Endurance Record

The greatest distance ever covered in one year is 400,000 km (248,548.5 miles) by François Lecot (1879-1949), an innkeeper from Chetaillé, France, in a 1,900-cc 66-bhp Citroën 11 sedan mainly between Paris and Monte Carlo, from July 22, 1935 to July 26, 1936. He drove on 363 of the 370 days allowed.

## Pikes Peak Race

The Pikes Peak Auto Hill Climb, Colorado (instituted 1916) has been won by Bobby Unser 13 times between 1956 and 1974 (10 championship, 2 stock and 1 sports car titles). In the 1979 race Dick Berg set a record time of 11 min 54.18 sec in a Chevrolet-powered Ford Coyote over the 12.42-mile course, rising from 9,402 to 14,110 ft through 157 curves.

## Land Speed Records

The highest speed attained by any wheeled land vehicle is 739.666 mph or Mach 1.0106 (making it the only land vehicle to break the sound barrier) in a one-way stretch by the rocket-engined *Budweiser Rocket*, designed by William Frederick, and driven by Stan Barrett at Edwards Air Force Base, California, on Dec 17, 1979. The vehicle, owned by Hal Needham, has a 48,000-hp rocket engine with 6,000 lb of extra thrust from a sidewinder missile. The rear wheels (100-lb solid discs) lifted 10 in off the ground above Mach 0.95, acting as 500-rpm gyroscopes.

The official 1-mi land speed record, which is for the average of a two-way run, was set on Oct 4, 1983 when Richard Noble (GB) drove a jet-powered car, *Thrust 2*, at 633.468 mph at Black Rock Desert, Primm, Nev. The previous record, 622.287, was set by Gary Ablach and had stood for 13 years.

The most successful land speed record breaker was Major Malcolm Campbell (1885-1948) (UK). He broke the official record nine times between Sept 25, 1924, with 146.157 mph in a Sunbeam, and Sept 3, 1935, when he achieved 301.129 mph in the Rolls-Royce engined *Lucbird*.

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## BASEBALL

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### Earliest Games

The Reverend Thomas Wilson, of Maidstone, Kent, England, wrote disapprovingly, in 1700, of baseball being played on Sundays. The earliest game on record under the Cartwright (Alexander Joy Cartwright, Jr, 1820-92) rules was on June 19, 1846, in Hoboken, NJ, where the "New York Nine" defeated the Knickerbockers 23 to 1 in 4 innings. The earliest all-professional team was the Cincinnati Red Stockings in 1869, who had 56 wins and 1 tie that season.

### Night Baseball

The first night game was played on June 2, 1883 (M.E. College vs professionals from Quincy, Ill). The major leagues were slow to adopt this change of program, then considered radical. The Cincinnati Reds were the first big-league team to play under lights when they hosted the Philadelphia Phillies on May 24, 1935. President Franklin D. Roosevelt pressed a button at the White House to flick the switch at Crosley Field. Wrigley Field, home of the Chicago Cubs, still remains unlit.

### Home Runs

Henry L. (Hank) Aaron (b Feb 5, 1934, Mobile, Ala) broke the major league record set by George H. (Babe) Ruth of 714 home runs in a lifetime when he hit No. 715 on Apr 8, 1974. Between 1954 and 1974 he hit 733 home runs for the Milwaukee and Atlanta Braves in the National League. In 1975, he switched to the Milwaukee Brewers in the American League and in that year and 1976, when he finally retired, he hit 22 more, bringing his lifetime total to 755, the major league record.

Mantle's homer in Detroit on Sept 10, 1960, which ascended over the right field roof and is said to have landed in a lumberyard, was measured trigonometrically in 1985 to have traveled 643 ft.

A North American record of almost 800 in a lifetime has been claimed for Josh Gibson (1911-47), mostly for the Homestead Grays of the Negro National League, who was elected in 1972 to the Baseball Hall of Fame in Cooperstown, NY. Gibson is said to have hit 75 round-trippers in one season, in 1931, but no official records were kept.

The most officially recorded home runs hit by a professional player in the US in one season is 72, by Joe Bauman, of the Roswell, NM team, a minor league club, in 1954. The major league record is 61 in 161 games of a 162-game season by Roger Maris (1934-1985) of the





The catcher misses on a third strike and the batter gets on base, so the hurler has to fan another batter. The latest pitcher to have 4 K's (strikeouts) in one inning was Mario Soto of the Reds on May 17, 1984 against the Cubs.

## Most Foul-Offs

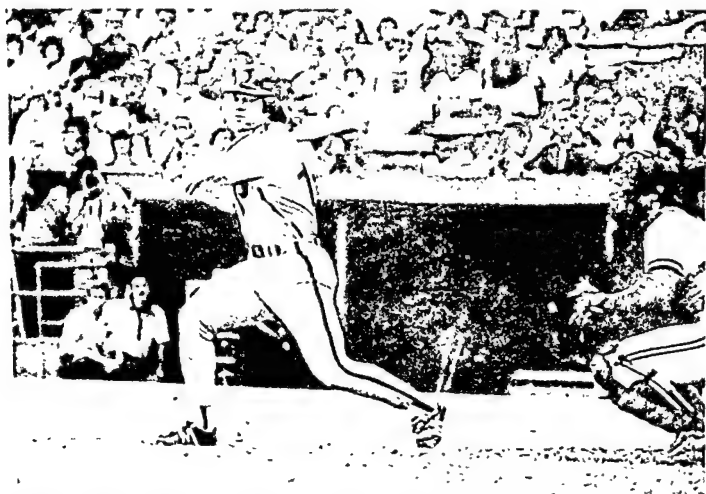
Luke Appling, shortstop for the White Sox in the 1930's, fouled off 14 consecutive pitches from Dizzy Trout of the Tigers. On the 15th pitch, Trout threw his glove instead of the ball.

## Hit by Pitch

Ron Hunt, an infielder who played with various National League teams from 1963 to 1974, led the league in getting hit by pitched balls for a record 7 consecutive years. His career total is 243, also a major league record.

## Consecutive Innings

Calvin Ripken, Jr. (b Aug 24, 1960) of the Baltimore Orioles set what is believed to be a record for playing every inning of consecutive games, stretching his streak that began June 5, 1982 to 755 games (6,843 innings) through 1986. Ripken played the first six games of the streak at third base, then moved to shortstop. Baseball researchers have found no previous streak longer than 534 games (Buck Freeman, Boston Red Sox, 1901-05).



**MOST HITS, MOST AT-BATS, MOST GAMES:** Pete Rose, spark plug of the Cincinnati Reds (with the Phillies for 5 years), now manager of the Reds, ended the 1986 season with 4,256 hits (65 more than Cobb) in 3,562 games and 14,053 times at the plate.







**HIT IN EVERY GAME** for 56 games is the record Joe DiMaggio (left) of the Yankees set in 1941, collecting 91 hits in those 2 months. **HOME RUN KING** Hank Aaron (right) did rewrite the record book. The great outfielder hit 755 homers in the major leagues and collected a lifetime record of 2,297 rbi's.

60 George H. (Babe) Ruth, NY AL (154-game schedule) (28 home, 32 away), 151 gs, 1927

Most home runs, lifetime

755 Henry L. Aaron, Mil NL, 1954 (13), 1955 (27), 1956 (26), 1957 (44), 1958 (30), 1959 (39), 1960 (40), 1961 (34), 1962 (45), 1963 (44), 1964 (24), 1965 (32); Atl NL, 1966 (44), 1967 (39), 1968 (29), 1969 (44), 1970 (38), 1971 (47), 1972 (34), 1973 (40), 1974 (20); Mil AL, 1975 (12), 1976 (10)

Most home runs, bases filled, lifetime

23 Henry Louis (Lou) Gehrig, NY AL, 1923-1939

Most home runs with bases filled, season

5 Ernest Banks, Chi NL, May 11, 19, July 17 (1st game), Aug 2, Sept 19, 1955  
James E. Gentile, Balt AL, May 9 (2), July 2, 7, Sept 22, 1961

Most home runs, with bases filled, game

2 Anthony M. Lazzeri, NY AL, May 24, 1936  
James R. Tabor, Bos AL (2nd game), July 4, 1939  
Rudolph York, Bos AL, July 27, 1946  
James E. Gentile, Balt AL, May 9, 1961 (consecutive at-bats)  
Tony L. Cloninger, Atl NL, July 3, 1966  
James T. Northrup, Det AL, June 24, 1968 (consecutive at-bats)  
Frank Robinson, Balt AL, June 26, 1970 (consecutive at-bats)

Most consecutive games hitting home runs\*\*

8 R. Dale Long, Pitt NL, May 19-28, 1956

Most home runs, one doubleheader

5 Stanley F. Musial, St L NL, 1st game (3), 2nd game (2), May 2, 1954  
Nathan Colbert, SD NL, 1st game (2), 2nd game (3), Aug 1, 1972

\*\*In July 1987, Don Mattingly, NY AL, tied this record

Most bases on balls, game  
 6 James E. Foxx, Bos AL,  
 June 16, 1938  
 Andre Thornton, Clev AL,  
 May 2, 1984 (16 inns)

Most bases on balls, season  
 170 George H. (Babe) Ruth,  
 NY AL, 152 games,  
 1923

Most hits, pinch-hitter, lifetime  
 150 Manuel R. Mota, SF NL,  
 1962; Pitt NL,  
 1963-1968; Mont NL,  
 1969; LA NL,  
 1969-1980

Most consecutive home runs,  
 pinch-hitter  
 3 Del Unser, Phil NL, June  
 30, July 5, 10, 1979  
 Lee Lacy, LA NL, May 2,  
 6, 17, 1978 (one walk in  
 between)

Most consecutive pinch hits  
 9 David E. Philley, Phil NL,  
 Sept 9, 11, 12, 13, 19,  
 20, 27, 28, 1958; Apr  
 16, 1959

## Base Running

Most stolen bases, lifetime  
 938 Louis C. Brock, Chi NL,  
 1961-64; St L NL,  
 1964-79

Most stolen bases, season since  
 1900  
 130 Rickey Henderson, Oak  
 AL, 149 games, 1982

Most stolen bases, game  
 7 George F. (Piano Legs)  
 Gore, Chi NL, June 25,  
 1881  
 William R. (Sliding Billy)  
 Hamilton, Phil NL, 2nd  
 game, 8 inn, Aug 31,  
 1894

*Modern Record*  
 6 Edward T. Collins, Phil  
 AL, Sept 11 and again  
 Sept 22, 1912

Most times stealing home, lifetime  
 35 Tyrus R. Cobb, Det AL,  
 1905-26; Phil AL,  
 1927-28

Fewest times caught stealing, sea-  
 son (50+ attempts)  
 2 Max Carey, Pitt NL, 1922  
 (53 atts)



**BASE STEALER SUPREME:**  
 Rickey Henderson, while with  
 the Oakland A's in 1982, stole  
 130 bases in 149 games. (Steve  
 Bahineau photo)

## Pitching

Most years  
 25 James Kaat, Minn AL  
 1959-73; Chi AL  
 1973-75; Phil NL  
 1976-79; NY AL  
 1979-80; St L NL  
 1980-83

Most games, lifetime  
 1,070 J. Hoyt Wilhelm, NY-St  
 L-Ail-Chi-LA (448) NL,  
 1952-57, 69-72;  
 Clev-Balt-Chi-Cal  
 (622) AL, 1957-69

Most complete games, lifetime  
 751 Denton T. (Cy) Young,  
 Clev-St L-Bos NL (428);  
 Bos-Clev AL (323),  
 1890-1911

Most games, season  
 106 Mike Marshall, LA NL,  
 1974

Most complete games, season  
 74 William H. White, Cin  
 NL, 1879

Lowest earned run average, season  
 0.90 Ferdinand M. Schupp, NY  
 NL, 1916 (140 inn)





Most consecutive shutout games, season

6 Donald S. Drysdale, LA NL, May 14, 18, 22, 26, 31, June 4, 1968

Most consecutive shutout innings

58 Donald S. Drysdale, LA NL, May 14-June 8, 1968

Most saves, season

46 Dave Righetti, NY AL, 1986

Most saves, lifetime

324 Roland (Rollie) Fingers, Oak AL, 1968-76; SD NL 1977-80; Mil AL 1981-84

## Fielding

1. percentage, season, by position

First Base: 1.000

Steven Garvey, SD NL, 1984

Second Base: .9948

Robert Wilfong, Minn AL, 1980

Third Base: .9894

Donald Money, Mil AL, 1974

Shortstop: .9912

Lawrence Bowa, Phil NL, 1979

Outfield: 1.000

Curtis Flood, St L NL, 1966

(based on most chances handled without an error—396)

Catcher: 1.000

Warren (Buddy) Rosar, Phil AL, 1946

Pitcher: 1.000

Randall Jones, SD NL, 1976

(based on most chances handled without an error—112)

Most consecutive games, no errors, by position

First Base: 193

Steven Garvey, SD NL, 1983-85

Second Base: 91

Joe Morgan, Cin NL, 1977-78

Third Base: 97

James Davenport, SF NL, 1966-68

Shortstop: 72

Edwin Brinkman, Det AL, 1972

Outfield: 266

Donald Demeter, Phil NL-Det AL, 1962-65

Catcher: 148

Lawrence P. (Yogi) Berra, NY AL, 1957-59

Pitcher: 385

Paul Lindblad, KC-Oak AL, 1966-74

## World Series Records

Most series played

14 Lawrence P. (Yogi) Berra, NY AL, 1947, 49-53, 55-58, 60-63

Highest batting percentage (20 g min), total series

391 Louis C. Brock, St L NL, 1964, 67-68 (g-21, ab-87, h-34)

Highest batting percentage, 4 or more games, one series

.625 4-game series, George H. (Babe) Ruth, NY AL, 1928

Most runs, total series

42 Mickey C. Mantle, NY AL, 1951-53, 55-58, 60-64

Most runs, one series

10 Reginald M. Jackson, NY AL, 1977

Most runs batted in, total series

40 Mickey C. Mantle, NY AL, 1951-53, 55-58, 60-64

Most runs batted in, consecutive times at bat

7 James L. (Dusty) Rhodes, NY NL, first 4 times at bat, 1954

Most base hits, total series

71 Lawrence P. (Yogi) Berra, NY AL, 1947, 49-53, 55-58, 60-63

Most home runs, total series

18 Mickey C. Mantle, NY AL, 1952 (2), 53 (2), 55, 56 (3), 57, 58 (2), 60 (3), 63, 64 (3)

Most home runs, one series

5 Reginald M. Jackson, NY AL, 1977



18	in 5 games Christy Mathewson, NY NL, 1905	6	Robert C. Richardson, NY AL, (4) 1st inn, (2) 4th inn, 1960
20	in 6 games C. A. (Chief) Bender, Phil AL, 1911	Most hits, 7-Game Series	
35	in 7 games Robert Gibson, St L NL, 1968	13	Martin Barrett, Bos AL, 1986
28	in 8 games W. H. Dinneen, Bos AL, 1903		Louis Brock, St L NL, 1968
Most strikeouts, one pitcher game			Robt Richardson, NY AL, 1960
17	Robert Gibson, St L NL, 1968	Most Series Won	
Most runs batted in, game		22	New York AL, 1923, 1927, 1928, 1932, 1936-39, 1941, 1943, 1947, 1949-53, 1956, 1958, 1961, 1962, 1977, 1978

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## Fastest Pitcher

The fastest recorded pitcher is (Lynn) Nolan Ryan (b Jan 31, 1947) who, on Aug 20, 1974 (then of the California Angels, now of the Houston Astros) at Anaheim Stadium, Calif, was measured to pitch at 100.9 mph.

## Attendances

The World Series record attendance is 420,784 (6 games with total gate receipts of \$2,626,973.44) when the Los Angeles Dodgers beat the Chicago White Sox 4 games to 2, Oct 1-8, 1959.

The single game record is 92,706 for the fifth game (gate receipts \$552,774.77) at the Memorial Coliseum (no longer used for baseball), LA, Oct 6, 1959.

The highest seating capacity in a baseball stadium is 74,208 in the Cleveland Municipal Stadium.

The all-time season record for attendance for both leagues has been 46,828,819 in 1984-85.

An estimated 114,000 spectators watched a game between Australia and an American servicemen's team in a "demonstration" during the Dec 1, 1956 Olympics in Melbourne, Australia.

## Most Strikeouts, Career

Nolan Ryan of the Houston Astros pitched his 4,000th strikeout on July 11, 1985 against the NY Mets, his former team. By the 1986 season's end his total had risen to 4,277. No other pitcher in the history of baseball has achieved such a record. Ryan was the first to eclipse Walter Johnson's (Wash AL) record of 3,508 which he set between 1907 and 1927 and which stood for 55 years until April 27, 1983.

Dwight Gooden (b Nov 16, 1964) of the Mets in the 1984 All-Star Game in San Francisco struck out 6 consecutive AL batters.

Gooden, in 1985, became the youngest pitcher to win the coveted Cy Young Award. He won it by unanimous vote of the 24 sports writers who make the selection.



## Managers

Connie Mack (1892–1956) managed in the major leagues for 53 seasons—3 with Pittsburgh (NL), 1894–96, and 50 with the Philadelphia Athletics (AL), the team he owned, 1901–50. He amassed a record 3,776 regular-season victories (952 victories ahead of John McGraw). Eddie Stanky managed the Texas Rangers (AL) for one day (June 23, 1977) before deciding he did not want the job—even though his team beat Minnesota, 10–8. It is believed to be the shortest term for anyone who signed a managerial contract (that is, excluding interim managers).

Charles D. "Casey" Stengel (1890–1975) set records by managing the NY Yankees (AL) in 10 World Series and winning 7 of them, including 5 in a row (1949–53).

## Do-Everything Record

Two major league ballplayers, Bert Campaneris (b Mar 12, 1942) and Cesar Tovar (b July 3, 1940), have the distinction of playing each of the nine field positions in a single major league game. Campaneris did it first, on Sept 8, 1965, when his team, the Kansas City Athletics, announced he would. He played one inning at each position, including the full eighth inning as a pitcher and gave up just one run. Tovar duplicated the feat on Sept 22, 1968, when he played for the Minnesota Twins. He pitched a scoreless first inning and retired the first batter, none other than Campaneris. On June 4, 1983, Mike Ashman, a minor league player for the Albany-Colonie A's of the Eastern League, improved upon the Campaneris-Tovar feat by playing 10 positions, including designated hitter, in a game against Nashua.

## Do-Nothing Record

Toby Harrah of the Texas Rangers (AL) played an entire double-header at shortstop on June 26, 1976, without having a chance to make any fielding plays, assists or putouts.

## Longest Throw

The longest throw of a 5-5¼-oz (regulation) baseball is 445 ft 10 in by Glen Gorbous (b Canada) Aug 1, 1957. Mildred "Babe" Didrikson (later Mrs George Zaharias) (1914–56) threw a ball 296 ft at Jersey City, NJ, July 25, 1931.

## Longest and Shortest Major League Games

The Brooklyn Dodgers and Boston Braves played to a 1–1 tie after 26 innings on May 1, 1920.

The NY Giants needed only 51 min to beat the Philadelphia Phillies, 6–1, in 9 innings on Sept 28, 1919. (A minor league game, Atlanta vs Mobile in the Southern Association on Sept 19, 1910, took only 32 min, it is claimed.)

The Chicago White Sox played the longest ballgame in elapsed time—8 hours 6 min—before beating the Milwaukee Brewers, 7–6, in the 25th inning on May 9, 1984 in Chicago. The game was ended with a homer by Harold Baines, making Tom Seaver the winning pitcher for pitching the last inning. The game took 2 days, actually. It started

on Tuesday night and was still tied at 3-3 when the 1 a.m. curfew caused suspension until Wednesday night.

### All Runs Unearned

The Mets scored 16 runs against the Houston Astros on July 27, 1985, winning 16-4, with all the Met runs unearned. Houston made 5 errors in the game.

### Fly Ball Stays Up

When the architects planned the Metrodome in Minneapolis they didn't know they had to contend with Dave Kingman, the slugger who has played in the American and National Leagues, who has been known previously for his many home runs and many strikeouts. Now Kingman has entered the *Guinness Book* with a record for a fly ball he hit that went straight up and didn't come down. It happened when he came up to bat for the Oakland Athletics against the Minnesota Twins on the night of May 4, 1984.

The ball penetrated the netting of the fabric ceiling of the dome 180 feet up and rolled around. When it didn't drop down for an infielder to catch it, the umpires didn't know what to call it. It wasn't in the rule book, of course. Was Kingman out, on the supposition that the fly ball would have been caught? They decided that the ball park was at fault and ruled it a "ground rule double." Fair? The A's lost the game anyway, 3-1. P.S. When the groundskeeper got the ball down, it was sent to the Baseball Hall of Fame in Cooperstown, NY.

### Ball Drop from a Dirigible

Joe Sprinz, later catcher for the Cleveland Indians, in 1939 was playing for the Seals of the Pacific Coast League, when Lefty O'Doul was his manager. The San Francisco World's Fair was drawing crowds to Treasure Island in the Bay when someone dreamed up the stunt of dropping baseballs from a dirigible from 1,200 ft up for the Seals' players to try to catch. Sprinz was the only one who had dared to try.

"I had to shade my eyes, I saw the ball all the way, but it looked the size of an aspirin tablet," he said later. "The ball hit me in the mouth, my lips were lacerated very badly, 12 cracks in my upper jaw, lost 5 teeth, was knocked out." And he dropped the ball.

### Rained-Out Game in Covered Stadium

The first time in baseball history a game in a covered stadium was called because of rain was on June 16, 1976, in Houston. Flooding around the Astrodome prevented anyone getting into the stadium and the game between Houston and Pittsburgh was called.

### Running Bases in Reverse

Herman (Germany) Schaefer of the Washington Senators in 1910 stole first base. This was after he had stolen second with a runner on third. Dissatisfied because the catcher had no chance of getting the runner out, Schaefer ran back to second to steal it.

again. A new baseball rule (1.08 i) was instituted at once to prevent this happening again.

### Longest Game in Baseball History

The longest was a minor league game in 1981 that lasted 33 innings. At the end of 9, the score was tied, 1-1, with the Rochester (NY) Red Wings battling the home team Pawtucket (RI) Red Sox. At the end of 21 it was tied, 2-2, and at the end of 32, the score was still 2-2, when the game was suspended. Two months later, play was resumed and 18 minutes later, Pawtucket scored one run and won. The winning pitcher was the Red Sox' Bob Ojeda, whose teammates included Marty Barrett at 2B, Wade Boggs at 3B, and Rich Gedman catching. The Rochester cleanup batter was Cal Ripken, Jr. The 33rd inning was witnessed by 54 newspaper reporters, got a top-of-page headline in *The New York Times*, and was carried by the national TV networks!

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## BASKETBALL

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### Origins

*Ollamalitzli* was a 16th century Aztec precursor of basketball played in Mexico. If the solid rubber ball was put through a fixed stone ring placed high on one side of the stadium, the player was entitled to the clothing of all the spectators. The captain of the losing team often lost his head (by execution). Another game played much earlier, in the 10th century BC by the Olmecs in Mexico, called *Pok-ta-Pok*, also resembled basketball in its concept of a ring through which a round object was passed.

Modern basketball was devised by the Canadian-born Dr James Naismith (1861-1939) at the Training School of the International YMCA College at Springfield, Mass, in Dec 1891. The first game played under modified rules was on Jan 20, 1892. The first public contest was on March 11, 1892.

The International Amateur Basketball Federation (FIBA) was founded in 1932.

### Most Accurate Shooting

The greatest goal-shooting demonstration was made by a professional, Ted St. Martin, now of Jacksonville, Fla, who, on June 25, 1977, scored 2,036 consecutive free throws.

In a 24-hour period, May 31-June 1, 1975, Fred L. Newman of San Jose, Calif, scored 12,874 baskets out of 13,116 attempts (98.15%). Newman has also made 88 consecutive free throws while blindfolded at the Central YMCA, San Jose, Calif, Feb 5, 1978. On Dec 17, 1986

he made 338 free throws out of 356 attempts in 10 min, for an average accuracy of 94.9%.

In 24 hours, Jeff Liles scored more free throws 15,138 out of 17,862 taken (but with 84.75% accuracy) at Lakeland Christian School, Lakeland, Fla, Apr 11-12, 1986.

The longest reported string of consecutive free throws made at any level of organized game competition is 126 by Daryl Moreau over 2 seasons (Jan 17, 1978-Jan 9, 1979) of high school play for De La Salle in New Orleans, La. The best reported one-game free throw performance was by Chris McMullin who made all 29 of his foul shots for Dixie College (St. George, Utah) in the NJCAA National Finals on March 16, 1982.

## Rule Change

In the 1940's coaches devised a new tactic, "freezing the ball," in order to maintain a leading score. It consisted of dribbling the ball and avoiding shooting it at the basket in order to maintain possession. In a short time this strategy became part of the entire game resulting in slow play and low scores. The lowest ever was when the Fort Wayne Pistons beat the Minneapolis Lakers 19-18, Nov 22, 1950. As attendance dropped as a result of boring play, Danny Biasone, a team owner, conceived of the "24-second rule" which requires a team to make a try at a basket within 24 seconds of gaining possession of the ball or turn possession over to the opposing team. In 1954, the NBA adopted the rule and scores increased dramatically—as did attendance. In international amateur play the 30-second rule is enforced. In college play the rule is 45 seconds.

## Greatest Attendances

The Harlem Globetrotters played an exhibition to 75,000 in the Olympic Stadium, West Berlin, Germany, in 1951. The largest indoor basketball attendance was 67,596, including 64,682 tickets sold at the box office, for the Indiana Olympic Basketball Tribute at the Hoosier Dome, Indianapolis on July 9, 1984. They saw victories by the US men's and women's Olympic teams over all-star opposition. The record for a women's college game is 22,157 in Iowa City between Univ of Iowa and Ohio State Univ, on Feb 3, 1985. The NBA record is 52,745 on Feb 15, 1987 in Pontiac, Mich, with the Philadelphia 76ers vs Detroit Pistons.

## Marathon

The longest game is 102 hours by two teams of five from the Sigma Nu fraternity at Indiana Univ of Pennsylvania, Indiana, Penn. April 13-17, 1983.

## Tallest Players

The tallest player of all time is reputed to be Suleiman Ali Nashnush (b 1943) who played for the Libyan team in 1962 when he measured 8 ft tall. Aleksandr Sizonenko of the USSR national team is 7 ft 10 in tall. The tallest woman player is Iuliana S (USSR) who played in the 1976 Olympics and is reputed to weigh 281 lb.

## NBA REGULAR SEASON RECORDS (Including 1986-87)

The National Basketball Association's Championship series was established in 1947. Prior to 1949, when it joined with the National Basketball League, the professional circuit was known as the Basketball Association of America.

### SERVICE

**Most Games, Lifetime**  
1,406 Kareem Abdul-Jabbar, Mil  
1970-75, LA Lakers  
1976-87

**Most Games, Consecutive, Lifetime**  
906 Randy Smith,  
Buf-SD-Cleve- NY  
1972-1983

**Most Complete Games, Season**  
79 Wilt Chamberlain, Phil  
1962

**Most Minutes, Lifetime**  
53,443 Kareem Abdul-Jabbar, Mil  
1970-75, LA Lakers  
1976-87

**Most Minutes, Season**  
3,882, Wilt Chamberlain, Phil  
1962

### SCORING

**Most Seasons Leading League**  
7 Wilt Chamberlain, Phil  
1960-62; SF 1963-64;  
SF-Phil 1965; Phil 1966

**Most Points, Lifetime**  
36,474 Kareem Abdul-Jabbar, Mil  
1970-75, LA Lakers  
1976-87

**Most Points, Season**  
4,029 Wilt Chamberlain, Phil  
1962

**Most Points, Game**  
100 Wilt Chamberlain, Phil vs  
NY, Mar 2, 1962

**Most Points, Half**  
59 Wilt Chamberlain, Phil vs  
NY, Mar 2, 1962

**Most Points, Quarter**  
33 George Gervin, SA vs NO,  
Apr 9, 1978

### NBA Championships

The most National Basketball Association titles have been won by the Boston Celtics with 16 championships between 1957 and 1987. They were beaten in 1987 by the Los Angeles Lakers, but still hold the record for 8 consecutive championships (1959-66).

**Most Points, Overtime Period**  
14 Butch Carter, Ind vs Bos,  
March 20, 1984

**Highest Scoring Average, Lifetime**  
(400+ games)  
30.1 Wilt Chamberlain,  
Phil-SF-LA 1960-73

**Highest Scoring Average, Season**  
50.4 Wilt Chamberlain, Phil  
1962

### Field Goals Made

**Most Field Goals, Lifetime**  
15,044 Kareem Abdul-Jabbar, Mil  
1970-75; LA Lakers  
1976-87

**Most Field Goals, Season**  
1,597 Wilt Chamberlain, Phil  
1962

**Most Field Goals, Game**  
36 Wilt Chamberlain, Phil vs  
NY, Mar 2, 1962

**Most Field Goals, Half**  
22 Wilt Chamberlain, Phil vs  
NY, Mar 2, 1962

**Most Field Goals, Quarter**  
13 David Thompson, Den vs  
Det, Apr 9, 1978

**Most 3-Point Field Goals, Game**  
8 Rick Barry, Hou vs Utah,  
Feb 9, 1980  
John Roche, Den vs Sea,  
Jan 9, 1982

**Most 3-Point Field Goals, Season**  
92 Darrell Griffith, Utah 1985

**BULL'S EYE:** Artis Gilmore of the Chicago Bulls leads the NBA with a .600 field goal percentage. The 7-ft-2-in center has raised his percentage by 23 points in 5 years.



**COURT JESTER:** Meadowlark Lemon, of the Harlem Globetrotters, whose comic antics have attracted over 80 million fans to the team's games worldwide.



**MAGIC!** Earvin Johnson the "magic" tactician of the LA Lakers added to his record for assists in a career in 1986-87. Here "Magic" drives to a basket over the Boston Celtics' Greg Kite (#50) in the NBA finals. The Lakers broke the Celtics streak of championships. (Nathaniel Butler/NBA).

## **Field Goal Percentage**

Most Seasons Leading League  
9 Wilt Chamberlain, Phil  
1961; SF 1963; SF-Phil  
1965; Phil 1966-68; LA  
1969, 72-73

Highest Percentage, Lifetime  
.600 Artis Gilmore, Chi  
1977-82; SA 1983-87

Highest Percentage, Season  
.727 Wilt Chamberlain, LA  
1973

## **Free Throws Made**

Most Free Throws Made, Lifetime  
7,694 Oscar Robertson, Cin-Mil  
1961-74

Most Free Throws Made, Season  
840 Jerry West, LA 1966

Most Free Throws Made, Consec-  
utive, Season  
78 Calvin Murphy, Hou Dec  
27, 1980-Feb 28, 1981

Most Free Throws Made, Game  
28 Wilt Chamberlain, Phil vs  
NY, Mar 2, 1962  
Adrian Dentley, Utah vs  
Hou, Jan 5, 1984

Most Free Throws Made (No  
Misses), Game  
19 Bob Pettit, St L vs Bos,  
Nov 22, 1961  
Bill Cartwright, NY vs  
KC, Nov 17, 1981

Most Free Throws Made, Half  
19 Oscar Robertson, Cin vs  
Balt, Dec 27, 1964

Most Free Throws Made, Quarter  
14 Rick Barry, SF vs NY, Dec  
6, 1966  
Pete Maravich, At vs Buff,  
Nov 28, 1973

## **Free Throw Percentage**

Most Seasons Leading League  
7 Bill Sharman, Bos  
1953-57, 59, 61

Highest Percentage, Lifetime  
.900 Rick Barry, SF-GS-Hou  
1966-67, 73-80

Highest Percentage, Season  
.958 Calvin Murphy, Hou 1981

## **REBOUNDS**

Most Seasons Leading League  
11 Wilt Chamberlain, Phil  
1960-62; SF 1963; Phil

1966-68; LA 1969-  
71-73

Most Rebounds, Lifetime  
23,924 Wilt Chamberlain,  
Phil-SF-LA 1960-73

Most Rebounds, Season  
2,149 Wilt Chamberlain, Ph  
1961

Most Rebounds, Game  
55 Wilt Chamberlain, Phil v  
Bos, Nov 24, 1960

Most Rebounds, Half  
32 Bill Russell, Bos vs Phi  
Nov 16, 1957

Most Rebounds, Quarter  
18 Nate Thurmond, SF v  
Balt, Feb 28, 1965

Highest Average (per game), Life-  
time  
22.9 Wilt Chamberlain,  
Phil-SF-LA 1960-73

Highest Average (per game), Sea-  
son  
27.2 Wilt Chamberlain, Ph  
1961

## **ASSISTS**

Most Seasons Leading League  
8 Bob Cousy, Bos 1953-6  
Most Assists, Lifetime  
9,887 Oscar Robertson, Cin-M  
1961-74

Most Assists, Season  
1,123 Isiah Thomas, Det 1985

Most Assists, Game  
29 Kevin Porter, NJ vs Hou  
Feb 24, 1978

Most Assists, Half  
19 Bob Cousy, Bos vs Minn  
Feb 27, 1959

Highest Average (per game), Life-  
time  
10.90 Earvin (Magic) Johnson  
LA Lakers 1979-87

Highest Average (per game), Sea-  
son  
13.86 Isiah Thomas, Detroit 198

## **PERSONAL FOULS**

Most Personal Fouls, Lifetime  
4,245 Kareem Abdul-Jabbar, M  
1970-75, LA Laker  
1976-87

Most Personal Fouls, Season  
386 Darryl Dawkins, NJ 198







record is 135 points by Danny Heater of Burnsville, W Va, on Jan 26, 1960.

In college play, Clarence (Bevo) Francis of Rio Grande College, Ohio, scored 113 points against Hillsdale on Feb 2, 1954. One year earlier, Francis scored 116 points in a game, but the record was disallowed because the competition was with a two-year school. In women's college basketball, Annette Kennedy of State Univ at Purchase, NY, scored 70 points vs Pratt Institute on Jan 22, 1984, with 34 field goals in 43 attempts.

Wilton Norman (Wilt) Chamberlain (b Aug 21, 1936) holds the professional record with 100 points for the Philadelphia Warriors vs NY Knicks, scored in one game on Mar 2, 1962. During the same season, Wilt set the record for points in a season (4,029).

Kareem Abdul-Jabbar (formerly Lewis Ferdinand Alcindor) (b Apr 16, 1947) has scored a professional career record of 36,474 points from 1970 through the 1987 season for the Milwaukee Bucks and Los Angeles Lakers. Wilt Chamberlain holds the record average of 30.1 points per game for his total of 31,419.

Pearl Moore of Francis Marion College, Florence, SC, scored a record 4,061 points during her college career, 1975-79. The men's college career scoring record is 4,045 points by Travis Grant for Kentucky State, 1969-72.

Mats Wermelin (Sweden), 13, scored all 272 points in a 272-0 win in a regional boys' tournament in Stockholm, Sweden, on Feb 5, 1974.

## Longest Field Goal

The longest *measured* field goal in a college game was made from a distance of 89 ft 10 in by Bruce Morris for Marshall Univ vs Appalachian St, Feb 7, 1985. In an AAU game at Pacific Lutheran University on Jan 16, 1970, Steve Myers sank a shot while standing out of bounds at the other end of the court. Though the basket was illegal, the officials gave in to crowd sentiment and allowed the points to count. The distance is claimed to be 92 ft 3½ in from measurements made 10 years later. The longest for a woman is one of 77 ft by Cheryl Myers of Lakeland (Ind) Christian Academy in a 48-29 victory over Elkhart Baptist on Jan 20, 1987.

## Team Scoring

The highest game total in the NBA is 370 points in the Detroit Pistons' victory over the Denver Nuggets 186-184 in 1983. The highest in college play is 282, Univ of Nevada—Las Vegas vs Utah State, 1985. Nevada won, 142-140.

## World Champions

The USSR has won most titles at both the Men's World Championships (inst. 1950) with three (1967, 1974 and 1982) and Women's (inst. 1953) with six (1959, 1964, 1967, 1971, 1975 and 1983).

## Youngest and Oldest

Bill Willoughby (b May 20, 1957) made his NBA debut for the Atlanta Hawks on Oct 23, 1975, when he was 18 years 5 months 3 days old. The oldest NBA player was Bob Cousy (b Aug 9, 1928).

who was 41 years 6 months 2 days old when he appeared in the last of seven games he played for the team he was coaching (Cincinnati Royals) during 1969-70.

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## BOWLING

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### Origins

Bowling can be traced to articles found in the tomb of an Egyptian child of 5200 bc where there were nine pieces of stone to be set up as pins at which a stone "ball" was rolled. The ball first had to roll through an archway made of three pieces of marble. In the Italian Alps about 2,000 years ago, the underhand tossing of stones at an object is believed the beginnings of *bocci*, a game still widely played in Italy and similar to bowling. Martin Luther is credited with the statement that nine was the ideal number of pins. In the British Isles, lawn bowls was preferred to bowling at pins. In the 16th century, bowling at pins was the national sport in Scotland. Early British settlers probably brought lawn bowls to the US and set up what is known as Bowling Green at the tip of Manhattan Island in NY but perhaps the Dutch under Henry Hudson were the ones to be credited.

In 1841, the Connecticut state legislature prohibited the game and other states followed. Eventually, a tenth pin was added to what had all along been a 9-pin game, to evade the ban.

### Organizations

The American Bowling Congress (ABC), established in NY on Sept 9, 1895, was the first body to standardize rules, and the organization now comprises 3,624,575 men who bowl in leagues and tournaments. The Women's International Bowling Congress (WIBC), founded 1916, has a membership of 3,550,566. The Young American Bowling Alliance (YABA) (inst 1982), the successor to the American Junior Bowling Congress and Youth Bowling Assn, has 663,411 youth and collegiate members. The Professional Bowlers Association (PBA), formed in 1958, comprises more than 2,800 of the world's best male bowlers. The Ladies Professional Bowlers Tour has 170 members.

### Lanes

In the US there were 8,503 bowling establishments with 157,706 lanes in 1985 and about 68 million bowlers.

The world's largest bowling center (now closed) was the Tokyo World Lanes Center, Japan, with 252 lanes. Currently the largest center is Fukuyana Bowl, Osaka, Japan, which has 144 lanes.

### Marathons

Donnie Moore (b 1960), a US Navy petty officer stationed at the Jacksonville, Fla Naval Air Station, bowled 2,028 games in 217 hours, 55 min, July 15-24, 1985, for an average of 9.3 games per hour. He was under medical surveillance, stopping for blood pressure

and vital sign checks regularly and on July 22 stopped for 24½ hours for hospital rest and oxygen intake per doctor's orders.

Diane Mahon-Westmoreland of Waskom, Tex, (b Aug 14, 1946) bowled 150 games in 17 hours 22 min, Feb 28-Mar 1, 1987 in a Marathon Madness Tournament.

## World Championships

The Fédération Internationale des Quilleurs world championships were instituted in 1954. The highest pinfall in the individual men's event is 5,963 for 28 games by Ed Luther (US) at Milwaukee, Wis on Aug 28, 1971. In the current schedule of 24 games, the men's record is 5,242 by Mats Karlsson (Sweden) and 4,806 by Bong Coo (Philippines) is the women's record, both set in Nov 1983 at Caracas, Venezuela.

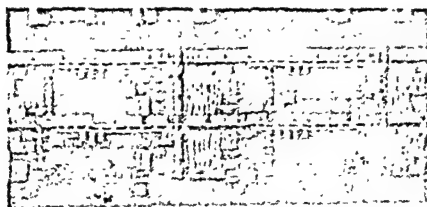
## ABC LEAGUE RECORDS

### Highest Scores

The highest individual score for three games is 886 by Albert "Allie" Brandt of Lockport, NY, on Oct 25, 1939. Glenn Allison (b 1930) rolled a perfect 900 in a 3-game series in league play on July 1, 1982, at La Habra Bowl, LA, Calif, but the ABC could not recognize the record when an ABC inspector determined they had been improperly dressed. Highest 3-game team score is 3,858 by Budweisers of St Louis on Mar 12, 1958.

The highest season average attained in sanctioned competition is 242 by John Ragard of Susquehanna, Pa, for 66 games in 1981-82.

The all-time ABC sanctioned 2-man single-game record is 600 by John Cotta (300) and Steve Lanson (300) on May 1, 1981, at the Manteca, Calif, Bowling Assn Tournament. The 2-man team series



**BEST FINISHES:** Les Schissler of Denver (bowling here) bowled a 300 game, won 3 ABC crowns in one year in 1966 after winning the singles, All-Events, and being on the winning team in one tournament.

record is 1,639 by Tim Foti (794) and Bob Perry (845) in Lodi, NJ on Aug 27, 1986.

## Consecutive Strikes

The record for consecutive strikes in sanctioned match play is 33 by John Pezzin (b 1930) at Toledo, Ohio, on March 4, 1976.

## Most Perfect Scores

The highest number of sanctioned 300 games is 27 (through 1986) by Elvin Mesger of Sullivan, Mo. The maximum 900 for a three-game series has been recorded five times in unsanctioned competition—by Leo Bentley at Lorain, Ohio, on March 26, 1931; by Joe Sargent at Rochester, NY, in 1934; by Jim Murgie in Philadelphia, on Feb 4, 1937; by Bob Brown at Roseville Bowl, Calif, on Apr 12, 1980; and by Glenn Allison (see above) at Whittier, Calif, on July 1, 1982.

## PBA RECORDS

### Most Titles

Earl Anthony of Dublin, Calif, has won a lifetime total of 41 PBA titles through Oct 1986. The record number of titles won in one PBA season is 8, by Mark Roth of North Arlington, NJ, in 1978.

### Consecutive Titles

Only three bowlers have ever won three consecutive professional tournaments—Dick Weber in 1959, 60, and 61, Johnny Petraglia in 1971, and Mark Roth in 1977.

### Perfect Games

A total of 119 perfect (300-pin) games were bowled in PBA tournaments in 1979. Dick Weber rolled 3 perfect games in one tournament (Houston) in 1965, as did Billy Hardwick of Louisville, Ky (in the Japan Gold Cup competition) in 1968, Roy Buckley of Columbus, Ohio (at Chagrin Falls, Ohio) in 1971, John Wilcox (at Detroit), Norm Meyers of St Louis (at Peoria, Ill) in 1979, and Shawn Christensen of Denver (at Denver) in 1984.

Don Johnson of Las Vegas, Nev, bowled at least one perfect game in 11 consecutive seasons (1965–1975). Guppy Troup, of Savannah, Ga, rolled 6 perfect games on the 1979 tour.

### Highest Earnings

The greatest lifetime earnings on the Professional Bowlers Association circuit have been won by Earl Anthony who has taken home \$1,265,171 through 1986. Mike Aulby holds the season earnings record with \$201,200 in 1985.

### Highest Score in 24 Hours

A team of 6 called "The Cobras" scored 53,543 in 24 hours at Paderborn (W Ger) Bowling Center, July 24–25, 1986.



**FRAME AND FORTUNE:** Earl Anthony of Dublin, Calif (above) is the PBA career champion with a lifetime total of 41 titles and earnings of more than \$1¼ million. Mark Roth of N Arlington, NJ (left) set a PBA season mark in 1978 when he won 8 titles.

## Television Bowling

Nelson Burton Jr, St Louis, rolled the best series, 1,050, for four games (278-279-257-236) at Dick Weber Lanes in Florissant, Mo, Feb 11, 1984.

## ABC TOURNAMENT RECORDS

### Highest Individual

Highest three-game series in singles is 801 by Mickey Higham of Kansas City, Mo, in 1977. Best three-game total in any ABC event is 833 by Fran Bax of Niagara Falls, NY, in team in 1983. Jim Godman of Lorain, Ohio, holds the record for a nine-game All-Events total with 2,184 (731-749-704) set in Indianapolis, Ind, in 1974. ABC Hall of Famers Fred Bujack of Detroit, Bill Lillard of Houston, and Nelson Burton Jr of St Louis, have won the most championships with 8 each. Bujack shared in 3 team and 4 team All-Events titles between 1951 and 1955, and also won the individual All-Events title. He was a singles bowled on Regular and team All-Events champions and was the Classic team champions in 1962 and 1971. He won the doubles and All-Events titles in 1956. Burton shared in 4 titles, 2 Classic doubles titles and has won Classic All-Events.

## Highest Doubles

The ABC national tournament record of 558 was set in 1976 by Les Zikes of Chicago and Tommy Hudson of Akron, Ohio. The record score in a doubles series is 1,453, set in 1952 by John Klares (755) and Steve Nagy (698) of Cleveland.

## Perfect Scores

Les Schissler of Denver scored 300 in the Classic team event in 1967, and Ray Williams of Detroit scored 300 in Regular team play in 1974, the first two perfect games bowled in team competition. In all, there have been only forty-six 300 games in the ABC tournament through 1986. There have been 25 perfect games in singles, 16 in doubles, and 5 in team play.

## Best Finishes in One Tournament

Les Schissler of Denver won the singles, All-Events, and was on the winning team in 1966 to tie Ed Lubanski of Detroit and Bill Lillard of Houston as the only men to win three ABC crowns in one year. The best four finishes in one ABC tournament were third in singles, second in doubles, third in team and first in All-Events by Bob Strampe, Detroit, in 1967, and first in singles, third in team and doubles and second in All-Events by Paul Kulbaga, Cleveland, in 1960.

## Strikes and Spares in a Row

In the greatest finish to win an ABC title, Ed Shay set a record of 12 strikes in a row in 1958, when he scored a perfect game for a total of 733 in singles. Most strikes in a row is 20 by Lou Viet of Milwaukee in 1977. The most spares in a row is 23 by Lt Hazen Sweet of Battle Creek, Mich, in 1950.

## Most Tournament Appearances

Bill Doehrman of Fort Wayne, Ind, competed in 71 consecutive ABC tournaments, beginning in 1908. (No tournaments were held 1943-45 )

## Attendance

Largest spectator attendance on one day for an ABC Tournament was 5,257 in Milwaukee in 1952. The total attendance record was set at Las Vegas, Nev, in 1986 with 201,175 in 134 days.

## Youngest and Oldest Winners

The youngest champion was Ronnie Knapp of New London, Ohio, who was a member of the 1963 Booster team champions when he was 16 years old. The oldest champion was Joe Detloff of Chicago, Ill, who, at the age of 72, was a winner in the 1965 Booster team event. The oldest doubles team in ABC competition totaled 165 years in 1955: Jerry Ameling (83) and Joseph Lehnbeutter (82), both from St Louis. The youngest bowler to score 300 is said to be John Jaszowski of S Milwaukee, Wis, who performed this feat at age 11, on Mar 13, 1982. The oldest bowler to score 300 is Leo Sites of Wichita, Kans, who performed the feat on Apr 10, 1985 at age 80.





The highest lifetime average is 199.14 by Dorothy Fothergill of Lincoln, RI, who has bowled for 10 years but is now inactive.

The largest tournament in 1983 in Las Vegas drew 14,430 teams attracted by a record \$1,627,815 in prize money.

### Perfect Games

The most 300 games rolled in a career is 11 by Jeanne Maiden of Solon, Ohio. The oldest woman to bowl a perfect game (12 strikes in a row) was Helen Duval of Berkeley, Calif, at age 65 in 1982. Of all the women who rolled a perfect game, the one with the lowest average was Diane Ponza of Santa Cruz, Calif, who had a 112 average in the 1977-78 season.

### Consecutive Strikes, Spares and Splits

The record for most consecutive strikes is 40 by Jeanne Maiden (see above). Joan Taylor of Syracuse, NY, made 27 consecutive spares. Shirley Tophigh of Las Vegas, Nev, holds the unenviable record of rolling 14 consecutive splits.

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## BOXING

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Boxing with gloves was depicted on a fresco from the Isle of Thera, Greece, which has been dated to 1520 bc. The earliest prize-ring code of rules was formulated in England, Aug 16, 1743, by the champion pugilist Jack Broughton (1704-89), who reigned from 1729 to 1750. Boxing, which had in 1867 come under the Queensberry Rules, formulated for John Sholto Douglas, 9th Marquess of Queensberry, was not established as a legal sport in Britain until after a ruling of Mr Justice Grantham following the death of Billy Smith (Murray Livingstone) due to a fight on Apr. 24, 1901, at Covent Garden, London.

### Longest Fights

The longest recorded fight with gloves was between Andy Bowen of New Orleans and Jack Burke in New Orleans, Apr 6-7, 1893. The fight lasted 110 rounds (7 hours 19 min from 9:15 p.m. to 4:34 a.m.) but was declared no contest (later changed to a draw) when both men were unable to continue. The longest recorded bare knuckle fight was one of 6 hours 15 min between James Kelly and Jack Smith at Fiery Creek, Dalesford, Australia, Dec 3, 1855. The greatest recorded number of rounds is 276 in 4 hours 30 min, when Jack Jones beat Patsy Tunney in Cheshire, England, in 1825. The longest world title fight was in 1906 when Joe Gans (US) beat Battling Nelson (Den) when Nelson was disqualified in the 42nd round of a scheduled 45-round contest.

### Shortest Fights

There is a distinction between the quickest knockout and the shortest fight. A knockout in 10½ sec (including a 10-sec count) occurred on

Sept 23, 1946, when Al Couture struck Ralph Walton while the latter was adjusting his mouthpiece in his corner at Lewiston, Me. If the time was accurately taken it is clear that Couture must have been more than half-way across the ring from his own corner at the opening bell.

The shortest world title fight was the James J. Jeffries (1875-1953) vs Jack Finnegan heavyweight bout on Apr 6, 1900, won by Jeffries in 55 sec.

The shortest professional bout occurred Apr 3, 1930 when Al Carr (Alfred Tramantano) stopped Lew Massey in 7 sec with one punch in New Haven, Conn.

### Longest Career

The heavyweight Jem Mace (GB) (1831-1910), known as "the Gypsy," had a career lasting 50 years from 1855 to 1905, when he put on an exhibition bout with Tug Wilson, but his career is not fully documented. Kid Azteca (b Louis Villanueva Pantoja, 1915, Mexico City) started boxing professionally in 1929 and has a published record that includes at least one bout per year, 1932-61.

### Tallest Boxer

The tallest boxer to fight professionally was Goga Miti (b 1914, Rumania) in 1935. He was 7 ft 4 in and weighed 327 lb. John Furrer, who won a fight in New Orleans in Nov 1967, also claimed 7 ft 4 in.

## WORLD HEAVYWEIGHT CHAMPIONS

### Earliest Title Fight

The first world heavyweight title fight, with 3-oz gloves and 3-minute rounds, was between John L. Sullivan (1858-1914) and Dominick McCaffrey on Aug 29, 1885 in Cincinnati, O. It went 6 rounds and Sullivan won.

### Longest and Shortest Reigns

The longest reign of any world heavyweight champion is 11 years 252 days by Joe Louis (b Joseph Louis Barrow, 1914-81), from June 22, 1937, when he knocked out James J. Braddock in the 8th round at Chicago until announcing his retirement on March 1, 1949. During his reign Louis made a record 25 defenses of his title. The shortest reign was by Greg Page (US) (b Oct 25, 1958) for 150 days, Dec 1984 to Apr 29, 1985. Ken Norton (US) (b Aug 6, 1945) was recognized by the WBC as champion for 83 days, Mar 18-June 9, 1978.

The longest-lived heavyweight champion was Jack Dempsey, who died May 31, 1983 aged 87 years 341 days.

### Oldest and Youngest

The oldest man to win the heavyweight crown was Jersey Joe Walcott (b Arnold Raymond Cream, Jan 31, 1914, at Merchantville, NJ), who knocked out Ezzard Charles on July 18, 1951, in Pittsburgh, when aged 37 years 5 months 18 days. Walcott was the oldest title holder at 38 years 7 months 23 days when he lost to Rocky Marciano on Sept 23, 1952. The youngest age at which the world heavyweight title has been won is 20 years 145 days by Mike Tyson (b June 30,



## Most Recaptures

Muhammad Ali Haj (b Cassius Marcellus Clay, in Louisville, Ky, Jan 17, 1942) is the only man to regain the heavyweight title twice. Ali first won the title on Feb 25, 1964, defeating Sonny Liston. He defeated George Foreman on Oct 30, 1974, having been stripped of his title by the world boxing authorities on Apr 28, 1967. He lost his title to Leon Spinks on Feb 15, 1978, but regained it on Sept 15, 1978 by defeating Spinks in New Orleans.

## Heavyweight Champions through the Years

1882 John L. Sullivan (US)  
1892 James J. Corbett (US)  
1897 Bob Fitzsimmons (GB)  
1899 James J. Jeffries (US)  
1905 Marvin Hart (US)  
1906 Tommy Burns (Can)  
1908 Jack Johnson (US)  
1915 Jess Willard (US)  
1919 Jack Dempsey (US)  
1926 Gene Tunney (US)  
1930 Max Schmeling (Ger)  
1932 Jack Sharkey (US)  
1933 Primo Carnera (Ita)  
1934 Max Baer (US)  
1935 James J. Braddock (US)  
1937 Joe Louis (US)  
1949 Ezzard Charles (US)  
1951 Jersey Joe Walcott (US)  
1952 Rocky Marciano (US)  
1956 Floyd Patterson (US)  
1959 Ingemar Johansson (Swe)  
1960 Floyd Patterson (US)  
1962 Sonny Liston (US)  
1964 Cassius Clay/Muhammad Ali (US)  
1965 Ernie Terrell (US)—WBA only till 1967  
1968 Joe Frazier (US)—NY State  
1968 Jimmy Ellis (US)—WBA  
1970 Joe Frazier (US)—undisputed  
1973 George Foreman (US)  
1974 Muhammad Ali (US)  
1978 Leon Spinks (US)  
1978 Ken Norton (US)—WBC  
1978 Muhammad Ali (US)—WBA  
1978 Larry Holmes (US)—WBC, IBF from 1983  
1979 John Tate (US)—WBA  
1980 Mike Weaver (US)—WBA  
1982 Mike Dokes (US)—WBA  
1983 Gerry Coetzee (So Afr)—WBA  
1984 Tim Witherspoon (US)—WBC  
1984 Pinklon Thomas—WBC  
1984 Greg Page—WBA  
1985 Tony Tubbs (US)—WBA  
1985 Michael Spinks (US)—WBC, IBF

1986 Trevor Berbick (Canada)—WBC  
1986 Tim Witherspoon (US)—WBA  
1986 Mike Tyson (US)—WBC, WBA, IBF

**WBC**—World Boxing Council, headquartered in Mexico City. President: Jose Sulaiman, who has devoted himself to boxing for 20 years. A substantial portion of WBC's income has been spent furthering the sport, protecting the athletes and improving medical facilities. This is the most highly regarded organization.

**WBA**—World Boxing Association, headquartered in Panama City, Panama. President: Gilberto Mendoza.

**IBF**—International Boxing Federation, headquartered in NJ. President: Bob Lee.

These 3 bodies represent national federations of boxing commissions throughout the world, and have a variety of financial and political connections.

### Knockout Percentage

George Foreman (b Jan 10, 1949) had the highest career knockout percentage of any heavyweight champion. In his 47 professional fights, Foreman KO'd 42 opponents, thus winning 89.36% of his fights by knockout.

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George Foreman is the only US champion in any weight class to have won, defended, and lost his crown all outside the US. To win his title he defeated Joe Frazier in Kingston, Jamaica, Jan 22, 1973. He defended it against Jose Roman in Tokyo, Japan, Sept 1, 1973, and against Ken Norton in Caracas, Venezuela, Mar 26, 1974. He lost it to Muhammad Ali in Kinshasa, Zaire, Oct 30, 1974. As world champion, this native of Marshall, Tex never fought in his own country.

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### WORLD CHAMPIONS (ANY WEIGHT)

#### Youngest and Oldest

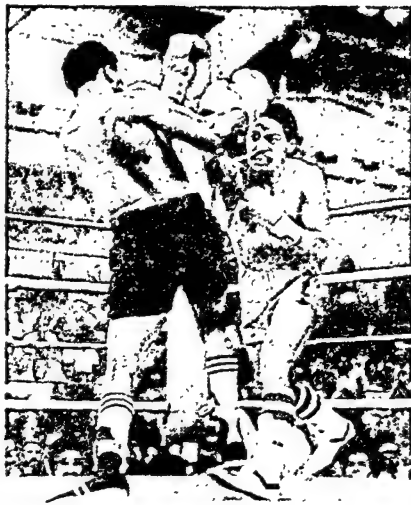
The youngest at which any world championship has been won is 17 years 176 days by Wilfredo Benitez (b Sept 12, 1958) of Puerto Rico, who won the WBA light-welterweight title, Mar 6, 1976.

The oldest world champion was Archie Moore (b Archibald Lee Wright, Collinsville, Ill, Dec 13, 1913 or 1916), who was recognized a light-heavyweight champion up to Feb 10, 1962, when his title was removed. He was then between 45 and 48. Bob Fitzsimmons (1863–1917) had the longest career of any official world titleholder with over 31 years from 1883 to 1914. He had his last world title bout Dec 20, 1905 at the age of 42 years 208 days.

#### Most Fights Without Loss

Edward Henry (Harry) Greb (US) (1894–1926) was unbeaten in 178

**YOUNGEST BOXER** to win a world title was Wilfredo Benitez (right), who captured the light-welterweight title when he was only 17½ years old. Benitez is one of only a handful of fighters who have won world titles in 3 different weight classes.



bouts, but these included 117 "no decisions" 1916-23 and 5 were unofficial losses. Of boxers with complete records Packey McFarland (US) (1888-1936) had 97 fights (five draws) in 1905-15 without a defeat. Pedro Carrasco (b Spain, Nov 7, 1943) won 83 consecutive fights from Apr 22, 1964 to Sept 3, 1970, and then drew once and had a further nine wins before his loss to Armando Ramos in a WBC lightweight contest on Feb 18, 1972.

### Olympic Gold Medals

In the 1984 Olympics, US boxers won a record total of 9 of the 12 gold medals.

Only two boxers have won three Olympic gold medals: southpaw László Papp (b 1926, Hungary), who took the middleweight (1948)

### Youngest Heavyweight Champion

Mike Tyson, at 20 years 145 days old, weighing 220 lb, the youngest heavyweight champion in boxing history won all but 2 of his first 31 fights by knockout, 15 of them in the 1st round (including 6 in a row in the initial round) in 1984-87.

At the age of 13, Tyson moved from a reformatory where he had spent two years, to the home and tutelage of prominent boxing teacher Cus D'Amato (d 1985), who had previously brought Floyd Patterson from reformatory to the world heavyweight championship, and Jose Torres to the light-heavyweight championship.

Tyson is managed by Bill Cayton and Jim Jacobs, the managers of Wilfredo Benitez, who won 3 world titles, and of Edwin Rosario, who won the lightweight title.



and the light-middleweight titles (1952 and 56), and Cuban heavyweight Teofilo Stevenson (b Mar 23, 1952), who won the gold medal in his division for three successive Games (1972, 76 and 80). The only man to win two titles in one meeting was Oliver L. Kirk (US), who took both the bantam and featherweight titles at St Louis, Mo, in 1904, but he only needed one bout in each class.

The oldest man to win an Olympic gold medal in boxing was Richard K. Gunn (1871-1961) (GB), who won the featherweight title on Oct 27, 1908, in London, aged 38.

## **Longest Reign**

Joe Louis's heavyweight duration record of 11 years 252 days stands for all divisions.

## **Most Recaptures**

The only boxer to win a world title five times at one weight is Sugar Ray Robinson (b Walker Smith, Jr, in Detroit, May 3, 1921) who beat Carmen Basilio (US) in the Chicago Stadium on March 25, 1958, to regain the world middleweight title for the fourth time. The other title wins were over Jake LaMotta (US) in Chicago on Feb 14, 1951; Randy Turpin (UK) in NYC on Sept 12, 1951; Carl "Bobo" Olson (US) in Chicago on Dec 9, 1955; and Gene Fullmer (US) in Chicago on May 1, 1957.

## **Amateur World Championships**

Two boxers have won three world championships (instituted 1974): Teofilo Stevenson (Cuba), heavyweight 1974, 1978 and 1986, and Adolfo Horta (b Oct 3, 1957) (Cuba), bantam 1978, feather 1982 and lightweight 1986.

## **Longest Title Fight**

The longest world title fight (under Queensberry Rules) was between the lightweights Joe Gans (1874-1910), of the US, and Oscar "Battling" Nelson (1882-1954), the "Durable Dane," at Goldfield, Nev, Sept 3, 1906. It was terminated in the 42nd round when Gans was declared the winner on a foul.

## **Most Title Bouts**

The record number of title bouts in a career is 37, of which 18 ended in "no decision," by 3-time world welterweight champion Jack Britton (US) (1885-1962), from 1915 to 1922.

## **Most Titles Simultaneously**

The only man to hold world titles at three weights simultaneously was Henry "Homicide Hank" Armstrong (b Dec 12, 1912) of the US, at featherweight, lightweight and welterweight from Aug to Dec 1938.

## **Most Knockdowns in Title Fights**

Vic Toweel (South Africa) knocked down Danny O'Sullivan of London 14 times in 10 rounds in their world bantamweight fight at Johannesburg, Dec 2, 1950, before the latter retired.



## ALL FIGHTS

### Highest Earnings in Career

The largest known fortune ever made in a fighting career (or any sports career) is an estimated \$69 million (including exhibition) amassed by Muhammad Ali from Oct 1960 to Dec 1981, in 61 fights comprising 549 rounds.

### Largest Purse

The total purse for the world middleweight title fight between "Marvelous" Marvin Hagler (b May 23, 1954) and "Sugar" Ray Leonard (b May 17, 1956) at Caesar's Palace car park, Las Vegas, on Apr 6, 1987, was estimated as \$30 million, \$18 million for Hagler (maybe more as receipts are slow coming in) and a flat \$12 million for Leonard, who won on points in a split decision.

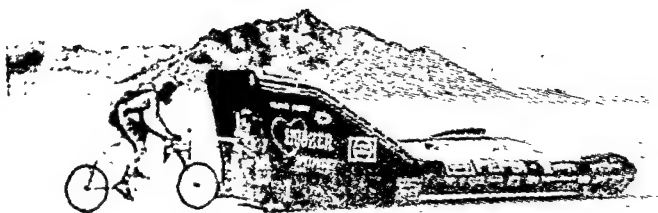
The largest stake ever fought for in the bare-knuckle era was \$22,500 in a 27-round fight when Jack Cooper beat Wolf Bendoff in Port Elizabeth, South Africa, July 26, 1889.

### Most Knockouts

The greatest number of knockouts in a career is 145 (129 in professional bouts) by Archie Moore (1936 to 1963). The record for consecutive KO's is 44, set by Lamar Clark of Utah at Las Vegas, Nev, Jan 11, 1960. He knocked out 6 in one night (5 in the first round) in Bingham Canyon, Utah, on Dec 1, 1958.



MUHAMMAD ALI (right) shows his vaunted right smash to Ken Norton. Ali made \$69 million, the most in any sport.



**SPEEDIEST BIKER:** John Howard, riding in the vacuum created behind a large-tail racing car on a specially designed 46-lb bicycle, sped more than 152 mph on Bonneville Salt Flats in July 1985. (A/ Gross)

## Earliest Race

The earliest recorded bicycle race was a velocipede race over 2 km (1.24 miles) at the Parc de St Cloud, Paris, on May 31, 1868, won by Dr James Moore (GB) (1847–1935).

The first American bicycle race was held May 24, 1878 in Boston's Beacon Park. Winner C. A. Parker of Harvard University covered the 3-mi course in 12 min, 27 sec.

The time-trial was devised in 1889–90 by F. T. Bidlake to avoid the congestion caused by ordinary mass road racing.

## Highest Speed

John Howard (b Aug 16, 1947) of Encinitas, Calif, achieved 152.284 mph on July 20, 1985, riding a specially designed 46-lb bike with hydraulic forks and motorcycle wheels, at Bonneville Salt Flats, Utah. A former Olympic cyclist, he rode behind a car that gave him considerable help with a large tail section designed to cut down on air resistance and gave a slipstreaming effect.

The greatest distance ever covered in one hour is 76 miles 604 yd by Leon Vanderstuyft (Belgium) on the Monthéry Motor Circuit, France, Sept 30, 1928. This was achieved from a standing start paced by a motorcycle ahead. (Cycling rules permit a motorcycle to precede a bicycle in an event of over 10 km.) The 24-hour record behind pace is 860 miles 367 yd by Sir Hubert Ferdinand Opperman (b May 29, 1904) in Melbourne, Australia on May 23, 1932.

## One-Hour Distance Records

The greatest distance covered in 60 min unpaced is 31 mi 1,381 yd by Francesco Moser (Italy) at Mexico City on Jan 23, 1984. The

Fallbrook, Calif, set the current mark of 8 days 9 hours 47 min in July 1986 during the Race Across America (3,107.3 mi, Huntington Beach, Calif to Atlantic City, NJ). The US transcontinental women's record of 10 days 2 hours 4 min, held by Elaine Mariolle of Berkeley, Calif, was also set during the '86 RAAM.

Lon Haldeman of Harvard, Ill, and his wife Susan Notorangelo-Haldeman set a transcontinental tandem bicycle record of 9 days 20 hours 7 min (Huntington Beach, Calif to Virginia Beach, Va) in April 1986.

Wayne Phillips of Richmond, BC, rode across Canada from Vancouver, BC, to Halifax, Nova Scotia, covering the 3,800 miles in 14 days 22 hours 47 min June 13-28, 1982.

## Endurance

Tommy Godwin (1912-75) (GB) in the 365 days of 1939 covered 75,065 miles or an average of 205.65 miles per day. He then completed 100,000 miles in 500 days to May 14, 1940. Jay Aldous and Matt DeWaal cycled 14,290 miles on a round trip from Place Monument, Salt Lake City, Utah, in 106 days, Apr 2-July 16, 1984.

Nicholas Mark Sanders (b Nov 26, 1957) of Glossop, Eng, circumnavigated the world (13,035 road miles) in 78 days, 3 hours 30 min between July 5 and Sept 21, 1985.

Carlos Vieira cycled for 191 hours "non-stop" at Leiria, Portugal June 8-16, 1983. The distance covered was 1,496.04 mi, and he was averaging 98.7% of the time.

## Six-Day Races

The greatest number of wins in six-day races is 88 out of 233 events by Patrick Sercu (b June 27, 1944), of Belgium, 1964-83.

## Longest One-Day Race

The longest single-day "massed start" road race is the Bordeaux-Paris, France, event of 342 to 385 miles. Usually paced over all or part of the route, the highest average speed in 1981 was 29.32 mph by Herman van Springel (Belgium) (b Aug 14, 1943) for 363.1 mi in 13 hrs 35 min 18 sec.

## Unicycle Records

The tallest unicycle ever mastered is one 101 ft 9 in tall ridden by Steve McPeak (with a safety wire or mechanic suspended to an overhead crane) for a distance of 376 ft in Las Vegas in Oct 1980. The one-style riding of even taller unicycles must inevitably lead to serious injury or fatality.

Transpeter Beck of Jindabyne, S Australia unicycled 3,876.08 mi in 23 days, 23 hours, 25 min, June 30-Aug 20, 1985, going from W Australia to Melbourne. Brian Davis of Tillicoultry, Scotland rode 901 mi from Land's End to John O'Groats May 16-June 4, 1980 in 19 days 13 1/4 hours. Floyd Beattie of Athens, O set a record for 100 mi in 10 hrs 18 min 55 sec on Oct 11, 1986. The sprint record from a standing start over 100 meters is 14.89 sec by Floyd Grandall of Ann Arbor, Mich, in Tokyo, Japan on Mar 24, 1980.





**CAUGHT 3,001 BASS** in a season: David Romeo of East Meadow, NY found the right fresh-water spots.

millions of fishermen have tried to break this record since then, it still stands.

### Spear-Fishing

The largest fish ever taken underwater was an 804-lb giant black grouper by Don Pinder of the Miami Triton Club, Fla, in 1955.

### Smallest Catch

The smallest fish ever to win a competition was a smelt weighing  $\frac{1}{16}$  of an oz, caught by Peter Christian at Buckenham Ferry, Norfolk, England, on Jan 9, 1977. This beat 107 other competitors who failed to catch anything.

### Largest Catches

Yet to be ratified is the largest fish ever caught by rod and line: A great white shark, 18 ft 9 in long, weighing 3,450 lb was landed off Montauk Marine Basin, LI, NY in August 1986 by Donnie Braddick and Frank Mundus. The shark fought for two hours, but this could not be accepted as a record because the men used a 150-lb test nylon line, heavier than the 130-lb IGFA limit.

The largest fish ever caught on a rod is an officially ratified man-eating great white shark (*Carcharodon carcharias*) weighing 2,664 lb, and measuring 16 ft 10 in long, caught by Alf Dean at Denial Bay, near Ceduna, South Australia, on Apr 21, 1959. In June 1978 a great white shark measuring 29 ft 6 in in length and weighing over 10,000 lb was harpooned and landed by fishermen in the harbor of San Miguel, Azores.

A white pointer shark weighing 3,388 lb was caught on a rod by Clive Green off Albany, W Australia, on Apr 26, 1976, but this will remain unrati ed as whale meat was used as bait.

The largest marine animal ever killed by *hand* harpoon was a blue whale 97 ft in length by Archer Davidson in Twofold Bay, NSW, Australia, in 1910. Its tail flukes measured 20 ft across and its jaw bone 23 ft 4 in.

The biggest single freshwater catch ever ratified was on the Snake River, Idaho, in 1956 when Willard Cravens caught a white sturgeon weighing 360 lb. However, that may not be the last word as two years

previously, in the same river, Glenn Howard claims to have caught one which weighed 394 lb.

The heaviest game fish caught on rod and line is a 468-lb sturgeon by Joey Pallotta on July 9, 1983 off Benicia, Calif. An 834-lb freshwater sturgeon was *landed* by Garry Oling from the Fraser River, Albion, Brit Columbia, on Aug 11, 1981.

## Most Valuable Fish

It was a modern version of an old fairy tale. When Al McReynolds went fishing one stormy night, the fish he caught brought fame and fortune. In this case, the magic was supplied by ABU-Garcia, a leading manufacturer of fishing tackle, through a contest that offered a \$250,000 reward for landing an all-tackle world record fish in one of four categories.

McReynolds, 36, and his friend Pat Erdman were fishing from a jetty in their hometown, Atlantic City, NJ, on the night of Sept 21, 1982, when McReynolds hooked and, after a 2-hour fight, landed a 78-lb-8-oz striped bass—a world record for rod and reel. As one ordeal had ended, another began. McReynolds had to wait for the



**MOST VALUABLE FISH:** A prize of \$250,000, the most money ever paid for a fish, awaited Al McReynolds of Atlantic City, NJ, when he caught this 78-lb-8-oz striped bass off a jetty after a 2-hour fight in Sept 1982.

IGFA and ABU-Garcia to determine that the record was legitimate—a process that took nearly 5 months. Testing even included having the fish x-rayed to determine no stones or weights had been added to make the fish heavier.

It all ended happily on Feb 11, 1983, at the Explorers Club in NYC when McReynolds received a check for \$250,000—the most money ever paid for a fish.

A claim has been made that two fishermen won \$500,000 each in a fishing contest in Puget Sound, Wash in 1983. The objective was to catch one of 8 tagged fish. The two reportedly succeeded and split the \$1 million prize.

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## FOOTBALL

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### Origins

The origin of modern football stems from the "Boston Game" as played at Harvard. Harvard declined to participate in the inaugural meeting of the Intercollegiate Football Association in NYC in Oct 1873, on the grounds that the proposed rules were based on the non-handling "Association" code of English football. Instead, Harvard accepted a proposal from McGill University of Montreal, which played the more closely akin English Rugby Football. The first football match under the Harvard Rules was thus played against McGill at Cambridge, Mass, in May 1874. Most sports historians point to a contest between Rutgers and Princeton at New Brunswick, NJ, on Nov 6, 1869, as the first football game, but many American soccer historians regard this contest as the first intercollegiate *soccer* game. (Rutgers won the game, 6 goals to 4, and there were 25 players to a side.) In Nov 1876, a new Intercollegiate Football Association, with a pioneer membership of 5 colleges, was inaugurated at Springfield, Mass, to reconcile the conflicting versions of the sport. It was not until 1880 that the game, because of the organizational genius of Walter Camp of Yale, began to take its modern form. Among other things, he reduced the number of players on a side to 11, which it is today (and defined their positions), and also replaced the scrum with the line of scrimmage.

Professional football dates from the Latrobe, Pa vs Jeannette, Pa match at Latrobe, in Aug 1895. The National Football League was founded in Canton, Ohio, in 1920, although it did not adopt its present name until 1922. The year 1969 was the final year in which professional football was divided into separate National and American Leagues, for record purposes.

### Most Prolific Recordbreaker

After he finished his 4-year career at Portland State U in 1980, Neil Lomax held 90 NCAA football records and was tied for two other records, mostly on the basis of his passing feats. No other football player, past or present, has been remotely close to holding that many records—in any college sport.





# ALL-TIME NATIONAL FOOTBALL LEAGUE RECORDS (Through 1986 Season)

## SERVICE

- Most Seasons, Active Player  
26 George Blanda, Chi Bears,  
1949-58; Balt., 1950;  
AFL: Hou., 1960-66;  
Oak., 1967-75
- Most Games Played, Lifetime  
340 George Blanda, Chi Bears,  
1949-58; Balt., 1950;  
AFL: Hou., 1960-66;  
Oak., 1967-75
- Most Consecutive Games Played,  
Lifetime  
282 Jim Marshall, Cleve., 1960;  
Minn., 1961-79
- Most Seasons, Head Coach  
40 George Halas, Chi Bears,  
1920-29, 33-42, 46-55,  
58-67

## SCORING

- Most Seasons Leading League  
5 Don Hutson, GB., 1940-44  
Gino Cappelletti, Bos.,  
1961, 63-66 (AFL)
- Most Points, Lifetime  
2,002 George Blanda, Chi Bears,  
1949-58; Balt., 1950;  
AFL: Hou., 1960-66;  
Oak., 1967-75 (9-td,  
943-pat, 335-fg)
- Most Points, Season  
176 Paul Hornung, GB., 1960  
(15-td, 41-pat, 15-fg)
- Most Points, Rookie Season  
132 Gale Sayers, Chi Bears,  
1965 (22-td)
- Most Points, Game  
40 Ernie Nevers, Chi Cards vs  
Chi Bears, Nov 28, 1929  
(6-td, 4-pat)
- Most Consecutive Games, Scoring  
151 Fred Cox, Minn 1963-73

## Touchdowns

- Most Seasons Leading League  
8 Don Hutson, GB.,  
1935-38, 41-44
- Most Touchdowns, Lifetime  
126 Jim Brown, Cleve.,  
1957-65 (106-r, 20-p)

- Most Touchdowns, Season  
24 John Riggins, Wash (24-r),  
1983
- Most Touchdowns, Rookie Season  
22 Gale Sayers, Chi Bears,  
1965 (14-r, 6-p, 1-prb, 1-  
krb)
- Most Touchdowns, Game  
6 Ernie Nevers, Chi Cards vs  
Chi Bears, Nov 28, 1929  
(6-r)  
William (Dub) Jones,  
Cleve vs Chi Bears, Nov  
25, 1951 (4-r, 2-p)  
Gale Sayers, Chi Bears vs  
SF, Dec 12, 1965 (4-r,  
1-p, 1-prb)
- Most Consecutive Games Scoring  
Touchdowns  
18 Lenny Moore, Balt.,  
1963-65

## Points After Touchdown

- Most Seasons Leading League  
8 George Blanda, Chi Bears,  
1956; AFL: Hou.,  
1961-62; Oak.,  
1967-69, 72, 74
- Most Points After Touchdown,  
Lifetime  
959 George Blanda, Chi Bears,  
1949-58; Balt., 1950;  
AFL: Hou., 1960-66;  
Oak., 1967-69, 72, 74
- Most Points After Touchdown,  
Season  
66 Uwe von Schamann, Mi-  
ami 1984
- Most Points After Touchdown,  
Game  
9 Marlin (Pat) Harder, Chi  
Cards vs NY, Oct 17,  
1948  
Bob Waterfield, LA vs  
Balt, Oct 22, 1950  
Charlie Gogolak, Wash vs  
NY Giants, Nov 27,  
1966
- Most Consecutive Points After  
Touchdown  
234 Tommy Davis, SF,  
1959-65

Most Points After Touchdown (no  
 ses), Game  
 9 Marlin (Pat) Harder, Chi  
 Cards vs NY Giants, Oct  
 17, 1948  
 Bob Waterfield, LA Rams  
 vs Balt, Oct 22, 1950

### Field Goals

Most Seasons Leading League  
 5 Lou Groza, Cleve, 1950,  
 52-54, 57

Field Goals, Lifetime  
 73 Jan Stenerud, KC 1967-69;  
 Gr Bay 1980-83, Minn  
 1984-85

Field Goals, Season  
 35 Ali Haji-Sheikh, NY Gi-  
 ants, 1983

Field Goals, Game  
 7 Jim Bakken, St L vs Pitt,  
 Sept 24, 1967

Consecutive Games, Field  
 31 Fred Cox, Minn, 1968-70

Highest Field Goal Percentage,  
 Season  
 95.24 Mark Mosely, Wash, 1982  
 (20-21)

Most Consecutive Field Goals  
 23 Mark Mosely, Wash,  
 1981-82

Longest Field Goal  
 63 yd Tom Dempsey, NO vs Det,  
 Nov 8, 1970

### RUSHING

Most Seasons Leading League  
 8 Jim Brown, Cleve,  
 1957-61, 63-65

Most Yards Gained, Lifetime  
 16,193 Walter Payton, Chi Bears,  
 1975-86

Most Yards Gained, Season  
 2,105 Eric Dickerson, LA Rams,  
 1984

Most Yards Gained, Game  
 275 Walter Payton, Chi Bears  
 vs Minn, Nov 20, 1977



**HALED FOR THE SUPER BOWL:** Owner George Halas (standing  
 in raincoat and baseball hat) coached the Chicago Bears for 40  
 years, piling up a record 325 victories. Here he watches Gale Sayers  
 1965 take off around end. The Bears did not win their first Super  
 Bowl until Jan 1986, long after Halas had passed away.

Longest Run from Scrimmage  
99 Tony Dorsett, Dall vs  
Minn, Jan 3, 1983 (td)

Highest Average Gain, Lifetime  
(799 att)

5.2 Jim Brown, Cleve,  
1957-65  
(2,359-12,312)

Highest Average Gain, Game (10  
att)

17.1 Marion Motley, Cleve vs  
Pitt, Oct 29, 1950  
(11-188)

Most Touchdowns Rushing, Life-  
time

106 Jim Brown, Cleve,  
1957-65  
Walter Payton, Chi Bears  
1975-86

Most Touchdowns Rushing, Sea-  
son

24 John Riggins, Wash, 1983

Most Touchdowns Rushing, Game  
6 Ernie Nevers, Chi Cards vs  
Chi Bears, Nov 28, 1929

## PASSING

Most Seasons Leading League  
6 Sammy Baugh, Wash,  
1937, 40, 43, 45, 47, 49

Most Passes Attempted, Lifetime  
6,467 Fran Tarkenton, Minn,  
1961-66, 72-78; NY Gi-  
ants, 1967-71

Most Passes Attempted, Season  
623 Dan Marino, Miami, 1986

Most Passes Attempted, Game  
68 George Blanda, Hou vs  
Buff, Nov 1, 1964  
(AFL) (37 completions)

Most Passes Completed, Lifetime  
3,686 Fran Tarkenton, Minn,  
1961-66, 72-78; NY Gi-  
ants, 1967-71

Most Passes Completed, Season  
378 Dan Marino, Miami, 1986

Most Passes Completed, Game  
42 Richard Todd, NY Jets vs  
SF, Sept 21, 1980 (59  
attempts)

Most Consecutive Passes Com-  
pleted

20 Ken Anderson, Cin vs  
Hou, Jan 2, 1983

Longest Pass Completion (all tds)

99 Frank Filchock (to Farkas),  
Wash vs Pitt, Oct 15,  
1939

George Izo (to Mitchell),  
Wash vs Cleve, Sept 15,  
1963

Karl Sweetan (to Studstill),  
Det vs Balt, Oct 16,  
1966

C. A. Jurgensen (to Allen),  
Wash vs Chi Bears, Sept  
15, 1968

Jim Plunkett (to Branch)  
LA Raiders vs Wash Oct  
2, 1983

Ron Jaworski (to Quick)  
Phil vs Atl, Nov 10,  
1985

Most Yards Gained Passing, Life-  
time

47,003 Fran Tarkenton, Minn,  
1961-66, 72-78; NY Gi-  
ants, 1967-71

Most Yards Gained Passing, Game  
554 Norm Van Brocklin, LA vs  
NY Yanks, Sept 28,  
1951 (41-27)

Most Yards Gained Passing, Sea-  
son

5,084 Dan Marino, Miami, 1984

Most Touchdown Passes, Lifetime  
342 Fran Tarkenton, Minn,  
1961-66, 72-78; NY Gi-  
ants, 1967-71

Most Touchdown Passes, Season  
48 Dan Marino, Miami, 1984

Most Touchdown Passes, Game  
7 Sid Luckman, Chi Bears vs  
NY Giants, Nov 14,  
1943

Adrian Burk, Phil vs  
Wash, Oct 17, 1954

George Blanda, Hou vs NY  
Titans, Nov 19, 1961  
(AFL)

Y. A. Tittle, NY vs Wash,  
Oct 28, 1962

Joe Kapp, Minn vs Balt,  
Sept 28, 1969

Most Touchdown Passes, Consec-  
utive Games

47 John Unitas, Balt, 1956-60

Passing Efficiency, Lifetime (1,500  
att)

63.2 Joe Montana, SF 1979-86;  
(1,818-2,878)

Passing Efficiency, Season (100 att)  
70.55 Ken Anderson, Cin, 1982  
(309-218)



**RUSHING RECORD** of 2,105 yds in one season was set by Eric Dickerson (LA Rams) in his peak year 1984, eclipsing O.J. Simpson's record of 2,003 which had held for 11 years. (UPI—Bettmann Archive)



**RUSHING RECORDHOLDER:** Walter Payton of the 1986 Super-Bowl Champion Chicago Bears set a record in 1977 for 58 games with 100 yds or more gained. In 1977 he broke the record for yds gained in one game (275). He rushed 16,193 yds in his career through 1986. (UPI—Bettmann Archive)

Passing Efficiency, Game (20 att)  
90.9 Ken Anderson, Cin vs Pitt,  
Nov 10, 1974 (22-20)

### *Passes Had Intercepted*

Most Passes Intercepted, Game  
8 Jim Hardy, Chi Cards vs  
Phil, Sept 24, 1950 (39  
attempts)

Most Consecutive Passes At-  
tempted, None Intercepted  
294 Bryan (Bart) Starr, GB,  
1964-65

Fewest Passes Intercepted, Season  
(Qualifiers)  
1 Joe Ferguson, Buff, 1976  
(151 attempts)

Lowest Percentage Passes Inter-  
cepted, Lifetime (1,500 att)  
2 64 Joe Montana, SF 1979-86  
(2,878-76)

Lowest Percentage Passes Inter-  
cepted, Season (Qualifiers)  
0 66 Joe Ferguson, Buff, 1976  
(151-1)

## **PASS RECEPTIONS**

Most Seasons Leading League  
8 Don Hutson, GB,  
1936-37, 39, 41-45

Most Pass Reception, Lifetime  
750 Charley Joiner, Hou  
1969-72, Cinc 1972-75,  
SD 1976-86

Most Pass Reception, Season  
106 Art Monk, Wash, 1984

Most Pass Reception, Game  
18 Tom Fears, LA Rams vs  
GB, Dec 3, 1950 (189  
yd)

Longest Pass Reception (all tds)  
99 Andy Farkas (Filchock),  
Wash vs Pitt, Oct 15,  
1939

Bobby Mitchell (Izo),  
Wash vs Cleve, Sept 15,  
1963

Pat Studstill (Sweetan),  
Det vs Balt, Oct 16,  
1966

Gerry Allen (Jurgensen),  
Wash vs Chi Bears, Sept  
15, 1968

Cliff Branch (Plunkett), LA  
Raiders vs Wash, Oct 2,  
1983

Mike Quick (Jaworski),  
Phil vs Atl, Nov 10,  
1985

Most Consecutive Games, Pass Re-  
ceptions  
139 Steve Largent, Seattle,  
1976-86

Most Pass Reception by a Running  
Back, Game  
17 Clark Gaines, NY Jets vs  
SF, Sept 21, 1980

Most Yards Gained Pass Recep-  
tions, Game  
309 Stephane Paige, KC vs SD,  
Dec 22, 1985

### *Touchdowns Receiving*

Most Touchdown Passes, Lifetime  
99 Don Hutson, GB, 1935-45

Most Touchdown Passes, Season  
18 Mark Clayton, Miami,  
1984

Most Touchdown Passes, Game  
5 Bob Shaw, Chi Cards vs  
Balt, Oct 2, 1950  
Kellen Winslow, SD vs  
Oak, Nov 22, 1981

Most Consecutive Games, Touch-  
down Passes  
11 Elroy (Crazy Legs) Hirsch,  
LA Rams, 1950-51  
Gilbert (Buddy) Dial, Pitt,  
1959-60

## **PASS INTERCEPTIONS**

Most Interceptions by, Lifetime  
81 Paul Krause, Wash (28),  
1964-67; Minn (53),  
1968-79

Most Interceptions by, Season  
14 Richard (Night Train)  
Lane, LA Rams, 1952

Most Interceptions by, Game  
4 By 17 players, twice by  
Jerry Norton St L vs  
Wash, Nov 20, 1960; St  
L vs Pitt, Nov 26, 1961

Most Touchdowns Interception Re-  
turns, Lifetime  
9 Ken Houston, Hou  
1967-79; Wash 1973-80

## PUNTING

Most Seasons Leading League

- 4 Sammy Baugh, Wash,  
1940-43  
Jerrel Wilson, AFL: KC,  
1965, 68; NFL: KC,  
1972-73

Most Punts, Season

- 114 Bob Parsons, Chi, 1981

Most Punts, Lifetime

- 1,083 John James, Atl 1972-81,  
Det 1982, Hou 1982-84

Longest Punt

- 8 yd Steve O'Neal, NY Jets vs  
Den, Sept 21, 1969  
(AFL)

Most Punts, Game

- 14 Dick Nesbitt, Chi Cards vs  
Chi Bears, Nov 30, 1933  
Keith Molesworth, Chi  
Bears vs GB, Dec 10,  
1933  
Sammy Baugh, Wash vs  
Phil, Nov 5, 1939  
John Kinscherf, NY Giants  
vs Det, Nov 7, 1943  
George Taliaferro, NY  
Yanks vs LA Rams, Sept  
28, 1951

### Average Yardage Punting

Highest Punting Average, Lifetime  
(300 punts)

- 45.1 yd Sammy Baugh, Wash,  
1937-52 (338)

Highest Punting Average, Season  
(20 punts)

- 51.4 yd Sammy Baugh, Wash,  
1940 (35)

Highest Punting Average, Game (4  
punts)

- 61.8 yd Bob Cifers, Det vs Chi  
Bears, Nov 24, 1946

## KICKOFF RETURNS

### Yardage Returning Kickoffs

Most Yards Gained, Lifetime

- 6,922 Ron Smith, Chi Bears,  
1965, 70-72; Atl,  
1966-67; LA, 1968-69;  
SD, 1973; Oak, 1974

Most Yards Gained, Season

- 1,345 George (Buster) Rhymes,  
Minn 1985

Most Yards Gained, Game

- 294 Wally Triplett, Det vs LA,  
Oct 29, 1950 (4)

Longest Kickoff Return for Touch-  
down

- 106 Al Carmichael, GB vs Chi  
Bears, Oct 7, 1956  
Noland Smith, KC vs Den,  
Dec 17, 1967 (AFL)  
Roy Green, St L vs Dall,  
Oct 21, 1979

Highest Average, Lifetime (75 re-  
turns)

- 30.6 Gale Sayers, Chi Bears,  
1965-71

### Average Yards Kickoff Returns

Highest Average, Season (15 re-  
turns)

- 41.1 Travis Williams, GB, 1967  
(18)

Highest Average, Game (3 returns)

- 73.5 Wally Triplett, Det vs LA  
Rams, Oct 29, 1950  
(4-294)

### Touchdowns Returning Kickoffs

Most Touchdowns, Lifetime

- 6 Ollie Matson, Chi Cards,  
1952 (2), 54, 56, 58 (2)  
Gale Sayers, Chi Bears,  
1965, 66 (2), 67 (3)  
Travis Williams, GB, 1967  
(4), 69, 71

Most Touchdowns, Season

- 4 Travis Williams, GB, 1967  
Cecil Turner, Chi Bears,  
1970

Most Touchdowns, Game

- 2 Thomas (Tim) Brown, Phil  
vs Dall, Nov 6, 1966  
Travis Williams, GB vs  
Cleve, Nov 12, 1967

## PUNT RETURNS

### Yardage Returning Punts

Most Yards Gained, Lifetime

- 3,123 Billy Johnson, Hou  
1974-80, Atl 1982-86

Most Yards Gained, Season

- 692 Fulton Walker, LA Raiders  
1985

Most Yards Gained, Game

- 207 LeRoy Irvin, LA Rams vs  
Atl, Oct 11, 1981

**Longest Punt Return (all tds)**  
 98 Gil LeFebvre, Cin vs Brk,  
 Dec 3, 1933  
 Charlie West, Minn vs  
 Wash, Nov 3, 1968  
 Dennis Morgan, Dall vs St  
 L, Oct 13, 1974

**Highest Average, Lifetime (75 or  
 more returns)**

12.78 George McAfee, Chi  
 Bears, 1940-41,  
 1945-50

**Highest Average, Season (Quali-  
 fiers)**

23.0 Herb Rich, Balt, 1950

**Highest Average, Game (3 returns)**

47.7 Chuck Latourette, St L vs  
 NO, Sept 29, 1968

### ***Touchdowns Returning Punts***

**Most Touchdowns, Lifetime**

8 Jack Christiansen, Det,  
 1951-58  
 Rick Upchurch, Den,  
 1975-83

**Most Touchdowns, Season**

4 Jack Christiansen, Det,  
 1951  
 Rick Upchurch, Den, 1976

**Most Touchdowns, Game**

2 Jack Christiansen, Det vs  
 LA Rams, Oct 14, 1951;  
 vs GB, Nov 22, 1951  
 Dick Christy, NY Titans vs  
 Den, Sept 24, 1961  
 Rick Upchurch, Den vs  
 Cleve, Sept 26, 1976  
 LeRoy Irvin, LA Rams vs  
 Atl, Oct 11, 1981

### **FUMBLES**

**Most Fumbles, Lifetime**

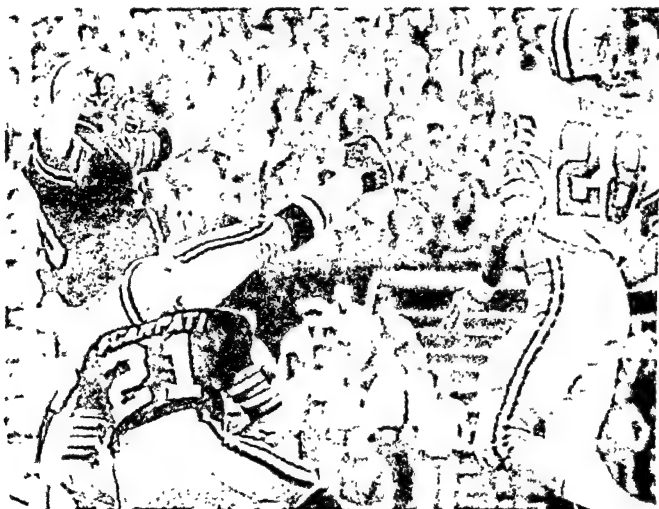
105 Roman Gabriel, LA Rams,  
 1962-72; Phil, 1973-77

**Most Fumbles, Season**

17 Dan Pastorini, Hou, 1973  
 Warren Moon, Hou 1984

**Most Fumbles, Game**

7 Len Dawson, KC vs SD,  
 Nov 15, 1964 (AFL)



**LONGEST FIELD GOAL:** Tom Dempsey (New Orleans Saints) kicked a record 63-yard field goal on the last play of an NFL game to beat the Detroit Lions 19-17 on Nov 8, 1970. Dempsey, who was born with only half a right foot and only part of his right arm, wore a special shoe for placekicking. He reportedly once kicked a 57-yarder without a shoe in a semipro game.

Longest Fumble Return  
104 Jack Tatum, Oak vs GB,  
Sept 24, 1972

Most Opponents' Fumbles Recovered, Lifetime  
29 Jim Marshall, Cleve, 1960;  
Minn, 1961-79

Most Opponents' Fumbles Recovered, Season  
9 Don Hultz, Minn, 1963

Most Opponents' Fumbles Recovered, Game  
3 by 9 players 1949-86

## SUPER BOWL RECORDS (Through 1987 Game)

Most points, lifetime  
24 Franco Harris, Pitt, 4  
games (4 td)

Most points, game  
18 Roger Craig, SF vs Miami,  
Jan 20, 1985 (3 td)

Most field goals, lifetime  
5 Ray Wersching, SF, 2  
games

Most field goals, game  
4 Don Chandler, GB vs.  
Oak, Jan 14, 1968  
Ray Wersching, SF vs Cin,  
Jan 24, 1982

Longest field goal  
48 Jan Stenerud, KC vs Minn,  
Jan 11, 1970  
Rick Karlis, Den vs NY  
Giants Jan 25, 1987

Most yards rushing, lifetime  
354 Franco Harris, Pitt, 4  
games

Most yards rushing, game  
191 Marcus Allen, LA Raiders  
vs Wash, Jan 22, 1984

Most yards passing, lifetime  
932 Terry Bradshaw, Pitt, 4  
games

Most yards, passing, game  
331 Joe Montana, SF vs Mi-  
ami, Jan 20, 1985

Most passes completed, lifetime  
61 Roger Staubach, Dallas, 4  
games

Most passes completed, game  
29 Dan Marino, Miami vs SF,  
Jan 20, 1985

Most touchdown passes, lifetime  
9 Terry Bradshaw, Pitt, 4  
games

Most touchdown passes, game  
4 Terry Bradshaw, Pitt vs  
Dallas, Jan 21, 1979

Longest completed pass  
80 Jim Plunkett to Kenny  
King, Oak Raiders vs  
Phil, Jan 25, 1981

Best passing pct, game  
.880 Phil Simms, NY Giants vs  
Den (22 of 25), Jan 25,  
1987

Most yards receiving, lifetime  
364 Lynn Swann, Pitt, 4 games

Most yards receiving, game  
161 Lynn Swann, Pitt vs Dal-  
las, Jan 18, 1976

Most receptions, lifetime  
16 Lynn Swann, Pitt, 4 games

Most receptions, game  
11 Dan Rose, Cin vs SF, Jan  
24, 1982

Most interceptions, game  
3 Rod Martin, Oak Raiders  
vs Phil, Jan 25, 1981

Longest punt  
62 Rich Camarillo, NE Patri-  
ots vs Chi Bears, Jan 26,  
1986

Longest punt return  
34 Darrell Green, Wash vs LA  
Raiders, Jan 22, 1984

Longest kickoff return  
98 Fulton Walker, Miami vs  
Wash, Jan 30, 1983

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## Longest Streaks

The longest collegiate winning streak is 47 straight by Oklahoma. The longest unbeaten streak is 63 games (59 won, 4 tied) by Washington from 1907 to 1917. Macalaster University of St Paul, Minn, ended a record 50-game losing streak when, with 11 sec remaining in the game, a 23-yd field goal beat Mount Senario, 17-14, on Sept 6, 1980. It was Macalaster's first victory since Oct 11, 1974.





**SUPER PASSING:** Phil Simms (NY Giants), most valuable player in the 1987 Super Bowl set 2 major records, completing 10 passes in a row and finishing with 22 out of 25 attempts for a record .880 percentage.

### Shortest Touchdown Pass

When the Dallas Cowboys had only 2 inches to go for a touchdown against the Washington Redskins on Oct 9, 1960, quarterback Eddie LeBaron did the unexpected. Knowing that everyone was looking to a powerful thrust at the line by the heaviest plunging back on his team, LeBaron took the ball from center and instead of handing it off to his fullback, slipped into the pocket and unleashed a short pass over the left side to his left end Bielski to set a world record for the shortest distance gained by a pass for a touchdown—2 inches.

### Highest Score

The most points ever scored (by one team and both teams) in a college football game was 222 by Georgia Tech, Atlanta, Ga, against Cumberland University of Lebanon, Tenn on Oct 7, 1916. Tech also set records for the most points scored in one quarter (63), most touchdowns (32) and points after touchdown (30) in a game, and the largest victory margin (Cumberland did not score).

### College Record Passer

Doug Flutie of Boston College became the first major college player to pass for more than 10,000 yards in a career. His next-to-last game of the 1984 season on Nov 23 saw him complete 34 of 46 passes for 472 yards and 3 touchdowns with no interceptions in a victory over the University of Miami, 47-45. The winning touchdown pass of 64 yards came in the last seconds of play in the Orange Bowl before 30,235 spectators and millions on a national TV hookup. The receiver of the final pass and many others of Flutie's passes was Gerald Phelan, his roommate.

## Coaching Records

The longest-serving head coach was Amos Alonzo Stagg (1862-1965), who served Springfield in 1890-91, Chicago from 1892 to 1932 and College of the Pacific from 1933 to 1946, making a total of 57 years. He later served as an assistant coach to his son.

The record for most victories by a coach of a professional team is 325, by George Halas (1895-1983), who coached the Chicago Bears, 1920-29, 33-42, 46-55, 58-67.

In 1948, Bennie Oosterbaan, an assistant coach at Mich, his alma mater, was elevated to head coach. He won all 9 games and the national championship, becoming the first and only man to do that as a first-year head coach.

## Super Bowl Winners

- 1967 Green Bay Packers (NFL)
- 1968 Green Bay Packers (NFL)
- 1969 New York Jets (AFL)
- 1970 Kansas City Chiefs (AFL)
- 1971 Baltimore Colts (AFC)
- 1972 Dallas Cowboys (NFC)
- 1973 Miami Dolphins (AFC)
- 1974 Miami Dolphins (AFC)
- 1975 Pittsburgh Steelers (AFC)
- 1976 Pittsburgh Steelers (AFC)
- 1977 Oakland Raiders (AFC)
- 1978 Dallas Cowboys (NFC)
- 1979 Pittsburgh Steelers (AFC)
- 1980 Pittsburgh Steelers (AFC)
- 1981 Oakland Raiders (AFC)
- 1982 San Francisco 49ers (NFC)
- 1983 Washington Redskins (NFC)
- 1984 Los Angeles Raiders (AFC)
- 1985 San Francisco 49ers (NFC)
- 1986 Chicago Bears (NFC)
- 1987 New York Giants (NFC)

The highest victory margin was in 1986 when the Bears beat the New England Patriots by 36 points, 46-10. This was also the most points scored by a winning team.

A record \$550,000 per 30 sec was charged by NBC for advertising on the telecast.

## Worst Attendance

The worst attendance for a college football game was recorded on Nov 12, 1955 at Pullman, Washington. The game was between Wash State and San Jose State. It was played in spite of high winds and a temperature of 0°F. Total paid attendance: 1.

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## GAMES

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11 additional games are covered in the *Guinness Sports Record Book*.

### BRIDGE (CONTRACT)

Bridge (corruption of Biritch) is thought to be either of Levantine origin, similar games having been played there in the early 1870s, or to have come from the East—probably India.

Auction bridge (highest bidder names trump) was invented c. 1890. The contract principle, present in several games (notably the French game *Plafond*, c. 1917), was introduced to bridge by Harold Vanderbilt (US) on Nov 1, 1925, during a Caribbean voyage aboard the SS *Finland*. The new version became a worldwide craze after the US vs GB challenge match between Rumanian-born Ely Culbertson (1891–1955) and Lt-Col Walter Thomas More Buller (1887–1933) at Almack's Club, London, Sept 1930. The US won the 200-hand match by 4,845 points.

#### Most Players

The biggest tournament, called the Epsom World Bridge Championship, held on May 16, 1987, was contested by 73,256 players playing the same hands at 1,537 centers.

#### Most World Titles

The World Championship (Bermuda Bowl) has been won 10 times often by Italy's Blue Team (*Squadra Azzura*), 1957–9, 61–3, 66–69, 73–5. Italy also won the Olympiad in 1964, 68 and 72. Gino Belladonna (b 1923) was on all these winning teams.

#### Most Durable Player

Oswald Jacoby (b Dec 8, 1902, Dallas, Tex, d 1984) was a world-rank competitor for 52 years after winning his first world title in 1931. In Oct 1967, he became the first player to amass 10,000 master points. He retired in July 1983 but came back in Nov 1983 to be part of a team that won the North America team championship. (He also won the World Backgammon title.)

The bridge player with the longest unbroken record of competition in an ACBL annual is Jay T. Feigus (b 1892) of Middleton, NJ, who in 1985 played in his 56th consecutive Goldman Trophy contest and twice finished in second place.

#### Most Master Points

In the latest ranking list based on Master Points awarded by the World Bridge Federation, the leading male player in the world



per hour with the average game lasting about 90 min. In 1958 a match between Dr Marion Tinsley (US) and Derek Oldbury (GB) lasted 7 hours 30 min. The shortest possible game is one of 20 moves, composed by Alan Malcolm Beckerson (GB) in 1977.

The longest session is 138 hours 28 min by Greg Davis and Mark Schumacher at Denny's Restaurant, Nunawading, Australia, Aug 26–Sept 1, 1985.

## CHESS

The game originated in ancient India under the name Chaturanga (literally "four-corps")—an army game. The name chess is derived from the Persian word *shah*. The earliest reference is from the Middle Persian Karnamak (c. 590–628), though there are grounds for believing its origins are from the 2nd century, owing to the discovery, announced in Dec 1972, of two ivory chessmen in the Uzbek Soviet Republic, datable to that century. The *Fédération Internationale des Echecs* was established in 1924. There were an estimated 7 million registered players in the USSR in 1973.

The game of chess has led to the publication of at least 20,000 books, more than for any other game.

### Most Opponents

Vlastimil Hort (b Jan 12, 1944) (Czechoslovakia), in Seltjarnes, Iceland, Apr 23–24, 1977, played 550 opponents, including a record 201 simultaneously. He only lost ten games.

Erik G. J. Knoppert (Neth) (b Sept 20, 1959) played 500 games of 10-min chess against opponents averaging 2,002 on the Elo scale in 67 hours 58 min, Sept 13–16, 1985. He scored 413 points (1 for win, ½ for draw), a success rate of 82.6%.

The record for most consecutive games played is 663 by Vlastimil Hort over 32½ hours at Porz, W Germany on Oct 5–6, 1984. He played 60–100 opponents at a time, scoring over 80% and averaging 30 moves per game.

George Koltanowski (Belgium, later of US) tackled 56 opponents "blindfold" and won 50, drew 6, lost 0 in 9¼ hours at the Fairmont hotel, San Francisco, on Dec 13, 1960.

### Longest Games

The master game with the most moves on record was when Yedael Stepak (b Aug 21, 1940) (Israel) beat Yaakov Mashian (b Dec 17, 1943) (Iran, later Israel) in 193 moves in Tel Aviv, Israel, March 23–Apr 16, 1980. The total playing time was 24½ hours.

The slowest reported move (before modern rules) in an official event is reputed to have been played by Louis Paulsen (1833–91) (Germany) against Paul Charles Morphy (1837–84) (US) on Oct 29, 1857. The game ended in a draw on move 56 after 15 hours of play, of which Paulsen used most of the allotted time. Grandmaster Friedrich Sämisch (1896–1975) (Germany) ran out of the allotted time (2½ hours for 45 moves) after only 12 moves, in Prague, Czechoslovakia, in 1938.

The slowest move played, since time clocks were introduced, was at Vigo, Spain in 1980 when Francisco Trois (b Sept 3, 1946) took 2 hrs



Shaw; also by Paul Haslam and Vincent Moore; all at the New Inn, Galgate, Lancaster, Eng, May 21-June 2, 1984. A claim of 384 hours 3 min in Eng in Aug 1984 has not been verified because of discrepancies in rest break times.

### 3-Cushion Billiards

This pocketless variation dates back to 1878. The world governing body, *Union Mondiale de Billiard*, was formed in 1928. The most successful exponent, 1906-52, was William F. Hoppe (1887-1959), who won 51 billiards championships in all forms between 1906 and 1952. The most UMB titles have been won by Raymond Ceulemans (Belgium) (b July 12, 1935) with 19 (1963-66, 1968-73, 1975-81, 83, 85).



**POOL ON TV:** The first, new fully authenticated pocket billiards game in a century, "7-Ball Pool" is attracting audiences, not only in America, but also in Italy, Japan, and Australia. Willie Mosconi (right) came out of retirement to meet the challenge of Minnesota Fats (left) at 7-Ball, the game invented by William D. Cayton (center).

## THROWING

In boomerang throwing, two new records were set in 1986. The longest distance for throw-and-return was 396.98 ft (121 m) achieved by Christian Jabet (France) on Apr 5, 1986 near Lyon, France. Dr. Larry Ruhf (US) set a record of 2 min 31 sec for keeping a boomerang aloft in a throw-and-catch contest in Catskill, NY, sponsored by the US Boomerang Assoc and Palenville Interarts, Inc.

The greatest distance any inert object heavier than air has been thrown is 1,298 ft (433 yd) in the case of the Skyro flying ring by Tom McRann (b Jan 17, 1950) of Menlo Park, Calif on May 21, 1986 at Great America Park, Santa Clara, Calif.

In Frisbee (flying disc) throwing. Don Cain of East Brunswick, NJ set the record for maximum time aloft by keeping a flying disc in the air for 16.72 sec in Phila, Pa, on May 26, 1984. For women, the time-aloft record is 11.47 sec, set in Sonoma, Calif, by Denise Garfield on Oct 5, 1980.

The greatest distance achieved for throwing a flying disc, running, and catching it is 272.6 ft by Steve Bentley on Apr 8, 1982, at Sacramento, Calif. The women's record is 196.9 ft by Judy Horowitz of NYC on June 29, 1985 at LaMirada, Calif.

The world record for outdoor distance is 550.8 ft by Frank Aquilera of LaPuente, Calif at Las Vegas, Nev, Feb 4, 1984. The indoor distance record is held by Van Miller of Tempe, Ariz, with a 399-ft toss at Flagstaff, Ariz, on Sept 18, 1982. In distance throwing 9-year-old Tyler Roddick of Pasadena, Calif, holds the record of 195.7 ft, best for his age, a record he has held since he was 2 years old. His father, Dan has held distance records too, and his grandfather Jack Roddick is the "senior grand master" with a throw of 272.2 ft.

Liz Reeves holds the women's outdoor distance record (401.5 ft, set in Surrey, England, June 14, 1980), while the women's indoor distance record belongs to Suzanne Fields, of Boston, who threw 229.6 ft in Cedar Falls, Iowa, Apr 26, 1981.

The 24-hour group distance record is 428.02 miles set in Vernon, Conn, by the South Windsor Ultimate Frisbee Disc Team, July 8-9, 1977. The outdoor pair distance record for 24 hours has been set at 303.38 mi by Leonard Miuse and Gabe Ontiveros at Torrance, Calif, Aug 3-4, 1986. Jamie Knerr and Keith Biery set the indoor 24-hour pair distance mark with 298.37 miles, Aug 14-15, 1982, at Allentown, Pa.

The Prince George's Community College Flying High Club set the group marathon mark with 1,198 hours, June 1-July 22, 1983. The two-person marathon record is held by Jamie Knerr and Keith Biery, who played 110 hours 40 min in Allentown, Pa, Aug 23-27, 1981.



**FASTEST DISC THROW:**  
Alan Bonopane holds the  
record for tossing a  
Frisbee—74 mph. (Dennell  
A. Tate Photography)



Alan Bonopane threw a professional model Frisbee disc at a speed of 74 mph and his teammate Tim Selinske made a clean catch of the throw on Aug 25, 1980 in San Marino, Calif.

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## GOLF

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(For more information about golf, including tournament winners, see the *Guinness Sports Record Book*.)

### Origins

It has been suggested that golf originated with Scottish shepherds using their crooks to knock pebbles into rabbit holes. This may be apocryphal, but somewhat firmer evidence exists. A stained glass window in Gloucester Cathedral, dating from 1350, portrays a golfer-like figure, but the earliest mention of golf occurs in a prohibiting law passed by the Scottish Parliament in March 1457, under which "golff be utterly cryit doune and not usit."

The Romans had a cognate game called *paganica*, which may have been carried to Britain before 400 AD. The Chinese National Golf Association claims the game is of Chinese origin ("Ch'ui Wan—the ball-hitting game") from the 3rd or 2nd century BC. There were official ordinances prohibiting a ball game with clubs in Belgium and Holland from 1360. Gutta-percha balls succeeded feather balls in 1848, and were in turn succeeded in 1902 by rubber-cored balls, invented in 1899 by Coburn Haskell (US). Steel shafts were authorized in the US in 1925.

Golf was first played on the moon in Feb 1971 by Capt Alan Shepard (US), commander of the Apollo XIV spacecraft.

### Oldest Clubs

The oldest club of which there is written evidence is the Gentleman Golfers (now the Honourable Company of Edinburgh Golfers) formed in March 1744—10 years prior to the institution of the Royal and Ancient Club of St Andrews, Fife, Scotland. However, the Royal Burgess Golfing Society of Edinburgh claim to have been founded in 1735. The oldest existing club in North America is the Royal Montreal Club (Nov 1873) and the oldest in the US is St Andrews, Westchester County, NY (1888). An older claim is by the Foxbury Country Club, Clarion County, Pa (1887).

### Longest Course

The world's longest course is the par-77, 8,325-yd International GC, Bolton, Mass, from the "Tiger" tees, remodeled in 1969 by Robert Trent Jones.

Floyd Satterlee Rood used the entire United States as a course, when he played from the Pacific surf to the Atlantic surf from Sept 1963 to Oct 1964 in 114,737 strokes. He lost 3,511 balls on the 3397.7 mi trail.

## Highest and Lowest Courses

The highest golf course in the world is the Tuctu Golf Club in Morococha, Peru, which is 14,335 ft above sea level at its lowest point. Golf has, however, been played in Tibet at an altitude of over 16,000 ft.

The lowest golf course in the world was that of the now defunct Sodom and Gomorrah Golfing Society at Kallia (Qulya), on the northern shores of the Dead Sea, 1,250 ft below sea level. Currently the lowest is the par-70 Furnace Creek Golf Course, Death Valley, Calif., at a disputed average of 178-272 ft below sea level.

## Biggest Bunkers

The world's biggest trap is Hell's Half Acre which stretches 200 yd across the fairway at the 585-yd 7th hole of the Pine Valley course, Clementon, NJ. Highest bunker is the 19-ft deep 115-yd-long trap along the 16th hole at the new PGA West course in Palm Springs, Calif.

## Longest Hole

The longest hole in the world is the 7th hole (par 7) of 909 yd at the Sano Course, Satsuki GC, Japan.

## Largest Green

Probably the largest green in the world is that of the par-6, 695-yd 5th hole at International GC, Bolton, Mass., with an area greater than 28,000 sq ft.

## Lowest Scores for 9 and 18 Holes

Three professional players are recorded to have played a long course (over 6,000 yd) for a score of 57: Bill Burke at the Normandie Golf Club, St Louis (6,389 yds, par 71) on May 20, 1970; Tom Ward at the Searcy (Ark) Country Club (6,098 yds, par 70) in 1981; Augie Navarro at the Sim Park Golf Course (Wichita, Kans) in 1982.

Alfred Edward Smith (1903-85), the English professional at Woolacombe, achieved an 18-hole score of 55 (15 under bogey 70) on his home course on Jan 1, 1936.

Nine holes in 25 (4, 3, 3, 2, 3, 3, 1, 4, 2) was recorded by A. J. "Bill" Burke in his round of 57 (32 + 25) (see above), and by teenager Douglas Beecher at the Pitman (NJ) Country Club (3,150 yd, par 35) in 1976. The tournament record is 27 by Mike Souchak (US) (b May 1927) for the second nine (par 35) first round of the 1955 Texas Open; Andy North (US) (b Mar 9, 1950) second nine (par 34), first round, 1975 BC Open at En-Joie GC, Endicott, NY; and Jose Maria Canizares (Spain) (b Feb 18, 1947), first nine, third round, in the 1978 Swiss Open on the 6,811-yd Crans-Sur course, and by Robert Lee (GB) (b Oct 12, 1961) first nine, first round, in the Monte Carlo Open on the 6,249 yd Mont Agel course on June 28, 1995.

The US PGA tournament record for 18 holes is 59 (30 + 29), by Al Geiberger (b Sept 1, 1937) in the second round of the Danny Thomas Classic, on the 72-par, 7,249-yd Colonial CC course, Memphis, Tenn, June 10, 1977.



# MOST WINS IN MAJOR TOURNAMENTS

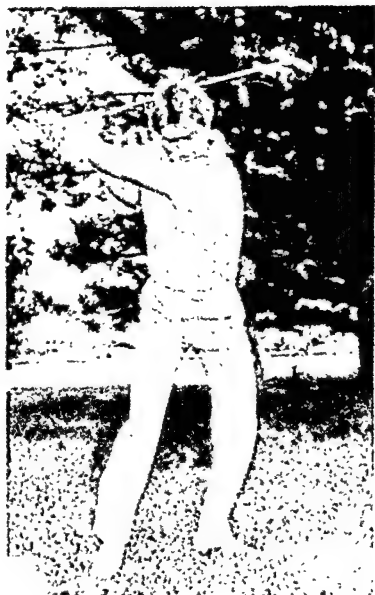
US Open	Willie Anderson (1880-1910)	4	1901-03-04-05
	Robert Tyre Jones, Jr (1902-71)	4	1923-26-29-30
	W. Ben Hogan (b Aug 13, 1912)	4	1948-50-51-53
	Jack William Nicklaus (b Jan 21, 1940)	4	1962-67-72-80
S Amateur	Robert Tyre Jones, Jr	5	1924-25-27-28-30
British Open	Harry Vardon (1870-1937)	6	1896-98-99, 1903-11-14
British Amateur	John Ball (1861-1940)	8	1888-90-92-94-99, 1907-10-12
PGA Championship (US)	Walter C. Hagen (1892-1969)	5	1921-24-25-26-27
Masters Cham- pionship (US)	Jack W. Nicklaus	5	1963-71-73-75-80
	Jack W. Nicklaus	6	1963-65-66-72- 75-86
S Women's Open	Elizabeth (Betsy) Earle-Rawls (b May 4, 1928)	4	1951-53-57-60
S Women's Amateur	"Mickey" Wright (b Feb 14, 1935)	4	1958-59-61-64
	Mrs Glenna Vare (née Collett) (b June 20, 1903)	6	1922-25-28-29- 30-35

## Women's Lowest Scores

The lowest recorded score on an 18-hole course (over 6,000 yd) for a woman is 62 (30 + 32) by Mary (Mickey) Kathryn Wright (b Feb 14, 1935), of Dallas, on the Hogan Park Course (6,286 yd) at Midland, Tex, in Nov 1964. Wanda Morgan (b March 22, 1910) recorded a score of 60 (31 + 29) on the Westgate and Birchington Golf Club course, Kent, England, over 18 holes (5,002 yd) on July 11, 1929. The LPGA record for 9 holes is held by Pat Bradley who scored 28 on a short course in Denver, Colo, Aug 24, 1984.

## Lowest Scores for 36 Holes

The record for 36 holes is 122 (59 + 63) by Sam Snead in the 1959 Greenbrier Open (now called the Sam Snead Festival) (non-PGA) (see page 570), May 16-17, 1959. Horton Smith (1908-63) twice Masters champion, scored 121 (63 + 58) on a short course (4,700 yd) on Dec 1, 1928.



**LONGEST DRIVE:**  
Jack Hamm  
of Denver, Colo. won a  
PGA contest with a  
406-yd drive.

### Lowest Scores for 72 Holes

The lowest recorded score on a first-class course is 255 (29 under par) by Leonard Peter Tupling (b Apr 6, 1950) (GB) in the Nigerian Open at Ikoyi Golf Club, Lagos, in Feb 1981, made up of 63, 66, 67, 64 (average 63.75 per round).

The lowest 72 holes in a US professional event is 257 (60, 68, 64, 65) by Mike Souchak in the 1955 Texas Open at San Antonio.

### Lowest Score with One Club

Playing only with a 6-iron, Thad Daber of Durham, NC, won the 35 World One Club Championship with a record score of 73 on the 37-yd Lochmere Golf Club course in Cary, NC on Nov 10, 1985, against 142 other contenders.

### Longest Drive

In long-driving contests 330 yd is rarely surpassed at sea level. In an official PGA long-driving contest at 5,200-ft altitude in Denver, Colo, at the John F. Kennedy Golf Course, on a clear day with a slight wind against him, Jack L. Hamm of Denver drove a ball 406 yd on July 12, 1986. The contest required the drive to land on a 100-ft wide fairway.

Liam Higgins (Ireland) drove a Spalding Top Flite ball 634.1 yd on an airport runway at Baldonnell Military Airport, Dublin, Ireland, Sept 1984.

The longest on a sea-level course is 515 yd by Michael Hoke Austin

(b Feb 17, 1910) of Los Angeles, in the US National Seniors Open Championship at Las Vegas, Nev, Sept 25, 1974. Aided by an estimated 35-mph tailwind, the 6-ft-2-in 210-lb golfer drove the ball on the fly to within a yard of the green on the par-4, 450-yd 5th hole of the Winterwood Course. The ball rolled 65 yd past the flagstick. Arthur Lynskey claimed a drive of 200 yd out and 2 miles down off Pikes Peak, Colo., (14,110 ft) June 28, 1968.

A drive of 2,640 yd (1½ miles) across ice was achieved by an Australian meteorologist named Nils Lied at Mawson Base, Antarctica, in 1962. On the moon, the energy expended on a mundane 300-yd drive would achieve, craters permitting, a distance of a mile.

### Biggest Winning Margin

The greatest margin of victory in a major tournament is 21 strokes by Jerry Pate (b Sept 15, 1953) (US) in the Colombian Open with 262 on Dec 10-13, 1981.

Cecilia Leitch won the Canadian Ladies Open Championship in 1921 by the highest margin for a major title, 17 up and 15 to play.

### Most Tournament Wins

The record for winning tournaments in a single season is 18 (plus one unofficial), including a record 11 consecutively, by Byron Nelson (b Feb 4, 1912) (US), March 8-Aug 4, 1945.

Sam Snead has won 84 official US PGA tour events to Dec 1979, and has been credited with a total 134 tournament victories since 1934.

Kathy Whitworth (b Sept 27, 1939) (US) topped this with her 88th LPGA victory through 1985, her 23rd year on the tour. Mickey Wright (US) won a record 13 tournaments in one year, 1963.

Jack Nicklaus (US) is the only golfer who has won all five major titles (British Open, US Open, Masters, PGA and US Amateur) twice, while setting a record total of 20 major tournament victories (1959-86). His remarkable record in the US Open is 4 firsts, 8 seconds and 2 thirds. Nicklaus has accumulated 71 PGA tournament wins in all.

In 1930 Bobby Jones achieved a unique "Grand Slam" of the US and British Open and British and US Amateur titles.

### Longest Putt

The longest recorded holed putt in a major tournament was one of 86 ft on the vast 13th green at the Augusta National, Ga, by Cary Middlecoff (b Jan 1921) in the 1955 Masters Tournament.

Bobby Jones was reputed to have holed a putt in excess of 100 ft on the 5th green in the first round of the 1927 British Open at St Andrews, Scotland.

Bob Cook (US) sank a putt measured at 140 ft 2¾ in on the 18th at St Andrew's, Scotland, in the International Fourball Pro-Am Tournament on Oct. 1, 1976.

### Highest Earnings

The greatest amount ever won in official US PGA golf prizes is \$4,957,173 by Jack Nicklaus through May 1987.

The record for a year in US PGA events is \$653,296 by Greg Norman (Aust) in 1986. His worldwide earnings were over \$1 million.









## Longest Span

Jacqueline Ann Mercer (*née* Smith) (b Apr 5, 1929) won her first South African title at Humewood GC, Port Elizabeth, in 1948, and her fourth title at Port Elizabeth GC on May 4, 1979, 31 years later.

## Biggest Prize Putt

Jack Nicklaus' total earnings went up by \$240,000 when he sank an 8-foot putt on the 18th green of the Desert Highlands course in Scottsdale, Ariz, on Nov 25, 1984 in a "Skins" match against Arnold Palmer, Gary Player and Tom Watson. All three of his opponents missed their birdie putts from farther distances and Nicklaus won the accumulated prize money.

## Richest Prize

The greatest first-place prize money was \$500,000 (total purse \$1.1 million) won by Johnny Miller (US) (b Apr 29, 1947) in 1982, and by Raymond Floyd (b Sept 4, 1942) in 1983 at Sun City, Bophuthatswana, S Africa.



**HIGHEST EARNINGS:** Besides winning 20 major tournaments (71 in all) for a record, Jack Nicklaus earned \$4,957,173 by May 1987 in prize money. Nicklaus is the only golfer who has won all 5 major titles twice. (E. D. Latley)

1000

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Orr (aged 5) of Littleton, Colo, on the 103-yd fifth hole at the Riverside GC, San Antonio, Tex, in 1975. *Golf Digest* credits Tommy Moore (6 yrs 1 month 7 days) of Hagerstown, Md with being the youngest for an ace he shot on a 145-yd hole in 1969.

The oldest golfer to have performed the feat is Otto Bucher (Switz) (b May 12, 1885) aged 99 years 244 days on Jan 13, 1985 when he aced the 130-yd 12th hole at La Manga GC, Spain.

The oldest woman to score an ace is Erna Ross, aged 95 years 257 days, who holed-in-one on the 112-yd 17th hole of the Everglades Club, Palm Beach, Fla, on May 25, 1986.

The oldest player to score his age is C. Arthur Thompson (1869-1975) of Victoria, BC, Canada, who scored 103 on the Uplands course of 6,215 yd when age 103 in 1973.

## Largest Tournament

The Volkswagen Grand Prix Open Amateur Championship in the UK attracted a record 321,778 (206,820 men and 114,958 women) competitors in 1984.

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## GYMNASTICS

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### Earliest References

Tumbling and similar exercises were performed c. 2600 BC as religious rituals in China, but it was the Greeks who coined the word gymnastics. A primitive form was practiced in the ancient Olympic Games, but it was not until Johann Friedrich Simon began to teach at Basedow's Gymnasium in Dessau, Germany, in 1776 that the foundations of the modern sport were laid. The first national federation was formed in Germany in 1860 and the International Gymnastics Federation was founded in Liège, Belgium in 1881. The sport was included at the first modern Olympic Games at Athens in 1896.

Current events for men are: floor exercises, horse vault, rings, pommel horse, parallel bars and horizontal bar, while for women they are: floor exercises, horse vault, asymmetrical bars, and balance beam.

### World Championships

In Olympic years, the Olympic title is the World Championship title.

The greatest number of individual titles won by a man in the World Championships including Olympics is 10 by Boris Shakhlin (USSR) between 1954 and 1964. He was also on three winning teams. The women's record is 12 individual wins and 5 team titles by Larissa Semyonovna Latynina (b Dec 27, 1934, retired 1966) of the USSR, between 1956 and 1964. She has the most medals, 33, of which 18 are Olympic medals. Japan has won the men's team title a record 5 times (1962, 66, 70, 74, 78) and the USSR the women's team title on 9 occasions (1954, 58, 62, 70, 74, 78, 81, 83 and 85).





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## Olympic Games

### The 1984 gold medalists:

#### Men

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##### *Individual All-Round*

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Koji Gushiken (Jap) 118,700 pts

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##### *Floor Exercises*

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Li Ning (China) 19,925 pts

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##### *Pommel Horse*

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tie Li Ning (China) 19,950 pts

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tie P. Vidmar (US) 19,950 pts

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##### *Rings*

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tie Koji Gushiken (Jap) 19,850 pts

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tie Li Ning (China) 19,850 pts

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##### *Horse Vault*

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Lou Yun (China) 19,950 pts

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##### *Parallel Bars*

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Bart Conner (US) 19,950 pts

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##### *Horizontal Bar*

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Shinji Morisue (Jap) 20,000 pts

#### Women

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##### *Individual All-Round*

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Mary Lou Retton (US) 79,175 pts

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##### *Floor Exercises*

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Ecaterina Szabo (Romania) 19,975 pts

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##### *Horse Vault*

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Ecaterina Szabo (Romania) 19,875 pts

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##### *Balance Beam*

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tie Simona Pauca (Romania) 19,800 pts

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tie Ecaterina Szabo (Romania) 19,800 pts

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##### *Uneven Parallel (Asymmetrical) Bars*

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tie Ma Yauhong (China) 19,950 pts

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tie J. McNamara (US) 19,950 pts

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##### *Rhythmic Individual All-Around*

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Lori Fung (Can) 5,795 pts

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## ROPE JUMPING

The longest recorded rope-jumping marathon (with 5-min rest break after each hour) was one of 13 hours 30 min 49 sec by Edwin Langerwijn (b Jan 19, 1967) at Reismalen, The Netherlands on May 16, 1987.

Other rope-jumping records made without a break and with only one fault per hour.

Most turns in 1 minute	418	Tyrone Krohn	Middletown (NY) HS	July 10, 1984
Most turns in 10 seconds	128	Albert Rayner	Birmingham, Eng	Nov 19, 1982
Most turns in 1 hour	12,496	Matt Davis and Shelly Nelson	Douglas Elementary School, Boulder, Colo	Dec 19, 1986
Most doubles (with cross)	2,110	Sean Birch	Kerry, Ireland	Oct 19, 1986
Double turns	10,133	Katsumi Suzuki (Japan)	Saitama	Sept 29, 1979
Treble turns	381	Katsumi Suzuki (Japan)	Saitama	May 29, 1975
Quadruple turns	51	Katsumi Suzuki (Japan)	Saitama	May 29, 1975
Quintuple turns	6	Hideyuki Tateda (Japan)	Aomori	June 19, 1982
Duration	1,264 miles	Tom Morris (Aust)	Brisbane-Cairns	1963
Most on a single rope (minimum 12 turns obligatory)	160	(50 m rope) Shimizu Iida Junior High School	Shizuoka-ken, Japan	Dec 10, 1982
Most turns on single rope (team of 90)	160	Students at Nishigoshi Higurashi Elementary School	Kumamoto, Japan	Feb 27, 1987
On a tightrope (consecutive)	58	Bryan Andrew (née Dewhurst)	TROS TV, The Netherlands	Aug 6, 1981
Skip-running	10 mi in 76 min 33 sec	Ashrita Furman (US)	Zurich, Switz	May 26, 1987



**ROPE-JUMP CHAMP:** Katsumi Suzuki (Japan), amazes spectators when he performs a quadruple turn in which he jumps about 4 ft in the air and turns the rope 4 times under his feet and around his body before landing back on the floor. He performed this feat 51 times in a row for a world record in 1975. He has also beaten all competitors in making consecutive treble turns (381) and double turns (10,133)—all without a stop or a miss. (Photo by Dean Moon)



**SKIP-RUNNING:** Ashrita Furman set another world record when he ran 10 miles like this in 76 min 33 sec in May 1987, to add to his somersaults, pogo stick, and jumping jacks records.

## **Largest Gymnastic Display**

The greatest number of gymnasts to give a display at the same time are the 30,000-40,000 from the Sokol movement who perform annually in the Strahov Stadium in Prague, Czechoslovakia before some 240,000 spectators.

## **Sit-Ups**

Tim Kides of West NY, NJ, a 21-year-old sophomore at Glassboro (NJ) State College, set a record of 72,746 sit-ups with his legs straight, with no weights or anyone holding his legs, in 64 hours Nov 13-15, 1985, beating the former record of 45,005 set in July 1985.

Louis Scripa, Jr, did 43,418 sit-ups within 24 hours in Sacramento, Calif, on Oct 6-7, 1984. As for leg raises, Scripa did 21,598 in 12 hours in Fairfield, Calif on Dec 8, 1983.

## **Rope Climbing**

The US Amateur Athletic Union (AAU) records are tantamount to world records: 20 ft (hands alone), 2.8 sec, by Don Perry, at Champaign, Ill, on Apr 3, 1954; 25 ft (hands alone), 4.7 sec, by Garvin S. Smith at Los Angeles, on Apr 19, 1947.

## **Sargent Jump**

Devised by, and named after, an eminent American professor of physical education in the 1920s, this exercise measures the differential between the height reached by a person's fingertips with feet flat on the ground, and that reached by jumping. The record is 48 in by Darrell Griffith (US) of the University of Louisville in 1976. Olympic Pentathlon champion Mary E. Peters (GB) reportedly jumped 30 in in Calif in 1972.

## **Parallel Bar Dips**

Vince Manson performed 1,320 parallel bar dips in 24 hours while in prison at Gartree, Eng, Apr 17, 1987.

## **Chinning the Bar**

The greatest number of continuous chin-ups (from a dead hang position) is 170 by Lee Chin Yong (b Aug 15, 1925) at Backyon Gymnasium, Seoul, S Korea on May 10, 1983. Robert Chisnall (b Dec 9, 1952) performed 22 one-arm (his right) chin-ups, from a ring, 18 two-finger chins and 12 one-finger chins, from a nylon strap on Dec 3, 1982 at Queen's Univ, Kingston, Ont, Canada.

## **Push-Ups**

Jeffrey Warwick did 32,251 push-ups in 24 hours at the YMCA, Buffalo, NY, June 16, 1987.

Paul Lynch (GB) did 3,857 one-arm push-ups in 5 hours in London's Guinness World of Records, June 6, 1987.

John Decker did 5,010 finger-tip push-ups in 5 hours at a department store in Manchester, Eng, June 19, 1987.

Chung Kwun Ying (Hong Kong) did 2,750 hand-stand push-ups at Government City Hall, Hong Kong, on May 18, 1986. In one hour he did 1,985.



have been open to professionals. The USSR has won 20 world titles between 1954 and 1986, including the Olympic titles of 1956, 64 and 68. They have won 3 further Olympic titles in 1972, 76 and 84. Canada won 19 titles between 1920 and 1961, including 6 Olympic titles (1920, 24, 32, 48 and 52). The longest Olympic career is that of Richard Torriani (b Oct 1, 1911) (Switzerland) from 1928 to 1948. The most gold medals won by any player is 3; this was achieved by 4 USSR players in the 1964, 68 and 72 Games—Vitaliy Davidov, Aleksandr Ragulin, Anatoliy Firsov and Viktor Kuzkin. Goalie Vladimir Tretiak (USSR) won 3 golds (1972, 1976 and 1984) as well as a silver in 1980.

### Longest Season

The only man ever to play 82 games in a 78-game season is Ross Lonsberry. He began the 1971–72 season with the Los Angeles Kings where he played 50 games. Then, in January, he was traded to the Philadelphia Flyers (who had played only 46 games at the time) where he finished out the season (32 more games).

Brad Marsh (b Mar 31, 1958) played 83 games (17 with Calgary and 66 with Philadelphia) during an 80-game season in 1981–82.

### Longest Career

Gordie Howe (b March 31, 1928, Floral, Saskatchewan, Canada) skated 25 years for the Detroit Red Wings from 1946–47 through the 1970–71 season, playing in a total of 1,687 NHL regular-season games.

After leaving the Red Wings, he ended a 2-year retirement to skate with his two sons as teammates and played for 6 more seasons with the Houston Aeros and the New England Whalers of the World Hockey Association, participating in 497 games.

With the incorporation of the (now Hartford) Whalers into the NHL for the 1979–80 season, Gordie Howe skated in all 80 regular season games (for a record total of 1,767) in his record 26th year in that league. The remarkable 52-year-old grandfather was again selected as an NHL all-star, more times than any other player. Including Howe's 157 NHL playoff appearances, he skated in 2,421 "major league" games in all.

### Longest Game

The longest game was 2 hours 56 min 30 sec (playing time) when the Detroit Red Wings eventually beat the Montreal Maroons 1-0 in the 17th minute of the sixth period of overtime at the Forum, Montreal, at 2:25 A.M. on March 25, 1936, 5 hours 51 min after the opening faceoff. Norm Smith, goaltender for the Red Wings, turned aside 92 shots in registering the NHL's longest single shutout.

### Longest Streaks

In the 1981–82 season, the NY Islanders won 15 consecutive regular season games, Jan 21–Feb 20, 1982. The Detroit Red Wings also won 15 from Feb 27–Apr 5, 1955, but that streak included 6 playoff games. The longest a team has ever gone without a defeat is 35 games, set by the Philadelphia Flyers with 25 wins and 10 ties from Oct 14, 1979, to Jan 6, 1980.



## NATIONAL HOCKEY LEAGUE ALL-TIME RECORDS

(Through 1986-87 Season; the number of a year refers to the season that commenced in the year before.)

### REGULAR SEASON

#### Service

##### Most Seasons

26 Gordie Howe, Det.  
1947-71; Hart, 1980

##### Most Games, Lifetime

1,767 Gordie Howe, Det.  
1947-71; Hart, 1980

##### Consecutive Games Played

962 Doug Jarvis, Mon-Wash-  
Hart, Oct 8, 1975

#### Scoring

##### Most Points, Lifetime

1,850 Gordie Howe, Det.  
1947-71; Hart, 1980

##### Most Points, Season

215 Wayne Gretzky, Edm,  
1986

##### Most Points, Game

10 Darryl Sittler, Tor vs Bos,  
Feb 7, 1976

##### Most Points, Period

6 Bryan Trottier, NY Isl vs  
NY Ran, Dec 23, 1978

##### Consecutive Games Scoring Points

51 Wayne Gretzky, Edm, Oct  
5, 1983-Jan 27, 1984

##### Most Goals, Lifetime

801 Gordie Howe, Det.  
1947-71; Hart, 1980

##### Most Goals, Season

92 Wayne Gretzky, Edm,  
1982

##### Most Goals, Game

7 Joe Malone, Que Bulldogs  
vs Tor St Pat, Jan 31,  
1920

##### Most Goals, One Period

4 Harvey Jackson, Tor vs St  
L, Nov 20, 1934  
Max Bentley, Chi vs NY  
Ran, Jan 28, 1943  
Clint Smith, Chi vs Mont,  
Mar 4, 1945  
Red Berenson, St L vs Phil,  
Nov 7, 1968  
Wayne Gretzky, Edm vs St  
L, Feb 18, 1981

Grant Mulvey, Chi vs St L,  
Feb 3, 1982

Bryan Trottier, NY Isl vs  
Phil, Feb 13, 1982

##### Most Hat Tricks (3 or more goals in a game), Lifetime

41 Wayne Gretzky, Edm,  
1980-87

##### Most Hat Tricks, Season

10 Wayne Gretzky, Edm,  
1982, 1984

##### Consecutive Games Scoring Goals

16 Harry Broadbent, Ottawa,  
1921-22

##### Most Assists, Lifetime

1,049 Gordie Howe, Det,  
1947-71; Hart, 1980

##### Most Assists, Season

163 Wayne Gretzky, Edm,  
1986

##### Most Assists, Game

7 Billy Taylor, Det vs Chi,  
Mar 16, 1947

Wayne Gretzky, Edm vs  
Wash, Feb 15, 1980; vs  
Chi Dec 11, 1985; vs  
Que Feb 14, 1986

##### Most Assists, Period

5 Dale Hawerchuk, Win vs  
LA, Mar 6, 1984

#### Goaltending

##### Games Played, Lifetime

971 Terry Sawchuk,  
Det-Bos-Tor-  
LA-NY Ran, 1950-70

##### Shutouts, Lifetime

103 Terry Sawchuk, Det-Bos-  
Tor- LA-NY Ran,  
1950-70

##### Shutouts, Season

22 George Hainsworth, Mont,  
1929

##### Consecutive Scoreless Streak

461 min 29 sec Alex Connell,  
Ottawa, 1927-28

##### Consecutive Games Without Defeat

32 Gerry Cheevers, Bos, Nov  
14, 1971-Mar 27, 1972





## Goaltender's Goal

The only goaltender to score a goal in an NHL game is Billy Smith (NY Islanders), against the Colorado Rockies in Denver, Nov 28, 1979. After the Rockies had removed their goaltender in favor of an extra skater during a delayed penalty, a Colorado defenseman's errant centering pass sent the puck skidding nearly the full length of the ice and into his own untended goal. Goalie Smith was the last Islander to touch the puck and was credited with the goal even though he did not take the actual "shot."

## Penalties

The most any team has been penalized in one season is the 2,621 min assessed against the Philadelphia Flyers in 1980-81. The most penalty-filled game was a contest between Boston and Minnesota in Boston on Feb 26, 1981, with a total of 84 penalties (42 by each team) for 406 min (211 min by Minnesota).

## Fastest Scoring

Toronto scored 8 goals against the NY Americans in 4 min 52 sec on March 19, 1938.

The fastest goal ever scored from the opening whistle came at 5 sec of the first period. This occurred twice, most recently by Bryan Trottier of the NY Islanders vs Boston Bruins on Mar 22, 1984. The previous time was by Doug Smail of the Winnipeg Jets against St Louis on Dec 20, 1981. Claude Provost of the Canadiens scored a goal against Boston after 4 sec of the opening of the second period on Nov 9, 1957.

The Boston Bruins set an NHL record with three goals in a span of 20 sec against the Vancouver Canucks on Feb 25, 1971. Left winger John Bucyk began the record-breaking feat with a goal at the 4 min 50 sec mark of the third period. Center Ed Westfall scored 12 sec later at 5 min 2 sec, while defenseman Ted Green rounded out the surge with a goal at the 5 min 10 sec mark.

The fastest scoring record is held by Bill Mosienko (Chicago) who scored 3 goals in 21 sec against the NY Rangers on March 23, 1952. In a playoff game Pat LaFontaine of the NY Islanders scored 2 goals in 22 sec vs Edmonton Oilers, May 19, 1984.

Gus Bodnar (Toronto Maple Leafs) scored a goal against the NY Rangers at 15 sec of the first period of *his first NHL game* on Oct 30, 1943. Later in his career, while with Chicago, Bodnar again entered the record book when he assisted on all 3 of Bill Mosienko's quick goals.

Several fast scoring feats have been reported from non-NHL competition: Kim D. Miles scored in 3 sec for Univ of Guelph vs Univ of W Ontario on Feb 11, 1975; Steve D'Innocenzo scored 3 goals in 12 sec for Holliston vs Westwood in a high school game in Mass on Jan 9, 1982; Clifford "Fido" Purpur, 38, scored 4 goals in 25 sec for the Grand Forks AMerks vs Winnipeg All Stars in Grand Forks, ND, on Jan 29, 1950. In team play, the Skara Ishockeyclubb, Sweden, scored 3 goals in 11 sec against Orebro IK at Skara on Oct 18, 1981; the Vernon Cougars scored 5 goals in 56 sec against Salmon Arm Aces at Vernon, BC, Canada, on Aug 6, 1982; the Kamloops Knights of



# HORSE RACING

## Origins

There is evidence that men were riding horses, as distinct from riding in chariots pulled by horses, in Assyria and Egypt c 1400 bc. However, early organized racing appears to have been confined to chariots, for which the Roman method used riders with a foot on each of two horses. The first racing on horseback was by the Greeks in the 33rd Olympic Games in 648 bc. The earliest recorded race in Britain was at Netherby, Cumbria in 210 ad between Arabian horses brought to Britain by the Roman Emperor, Lucius Septimius Severus. The first recognizable regular race meeting was that held at Smithfield, London at the weekly horse fairs on Fridays in 1174. The first known prize money was a purse of gold presented by Richard I (the Lion-heart) in 1195 for a race between knights over a distance of 3 mi.

Organized horse racing began in New York State at least as early as March 1668. The original Charleston (Va) Jockey Club, organized in 1734, was the world's first.

Racing colors (silks) became compulsory in 1889.

All thoroughbred horses in the world today are descended from at least one of three great stallions, which were imported into Britain in the 17th and 18th centuries. The "Darley Arabian" was brought from Aleppo, Syria by the British Consul Richard Darley of Yorkshire c 1704; the "Byerley Turk" was brought to England from Turkey c 1685 and used by Captain Byerley as a charger in Ireland; and the Godolphin Barb—the latter word derived from the Barbary Coast of North Africa—was originally brought from France by Edward Coke in about 1735 and then acquired by the Earl of Godolphin.

## Largest Prizes

The richest races ever held are the Breeders' Cup 7-race meetings, run most recently at Santa Anita Park, Calif, on Nov 1, 1986, which paid \$10 million total in prize money. This included a total purse of \$3 million to the top winners of the 1¼-mi Breeders' Cup Classic.

## Speed (see table)

"Big Racket" reached 43.26 mph in setting his ¼-mi record in 1945. "Fiddle Isle" sped 37.76 mph over 1½ mi in 1970, and "John Henry" duplicated this speed in his record run in 1980.

## Victories

The horse with the best win-loss record was "Kincsem," a Hungarian mare foaled in 1874, who was unbeaten in 54 races (1876–79), including the English Goodwood Cup of 1878.

The longest winning sequence is 56 races, in Puerto Rico 1953–5, by "Camarero," foaled in 1951. He had 73 wins in 77 starts altogether. The most wins in a career is 137 from 159 starts by "Galgo Jr" (foaled 1928) in Puerto Rico between 1930 and 1936; in 1931 he won a record 30 races in one year. The only horse to win the same race



# HORSES' SPEED RECORDS

Distance	Time mph	Name	Course	Date
1/4 mile	20.8s.43.26	•Big Racket (Mex)	Mexico City, Mex	Feb 5, 1945
1/2 mile	44.4s.40.54	Sonido (Ven)	†Caracas, Ven	June 28, 1970
	44.4s.40.54	Western Romance (Can)	Calgary, Can	Apr 19, 1980
	44.4s.40.54	Northern Spike (Can)	Winnipeg, Can	Apr 23, 1982
3/4 mile	53.6s.41.98†	Indigenous (GB)	†*Epsom, Eng	June 2, 1960
	53.89s.41.75††	Raffingora (GB)	†*Epsom, Eng	June 5, 1970
	55.2s.40.76	Chinook Pass (US)	Seattle, Wash	Sept 17, 1982
1/4 mile	1m.06.2s.40.78	Broken Tendril (GB)	*Brighton, Eng	Aug 6, 1929
	1m.07.2s.40.18	Grey Papa (US)	Longacres, Wash	Sept 4, 1972
	1m.07.2s.40.18	Petro D. Jay (US)	Phoenix, Ariz	May 9, 1982
Mile	1m.31.8s.39.21	Souelda (GB)	*Brighton, Eng	Sept 19, 1963
	1m.31.8s.39.21	Loose Cover (GB)	*Brighton, Eng	June 9, 1966
		Traditional Miss (GB)	Chepstow, Wales	June 27, 1981
		Traditional Miss (GB)	Chepstow, Wales	Aug 31, 1981
1 1/4 miles	1m.57.4s.38.33	Double Discount (US)	Arcadia, Calif	Oct 9, 1977
1 1/2 miles	2m.23.0s.37.76	•Fiddle Isle (US)	Arcadia, Calif	Mar 21, 1970
		•John Henry (US)	Arcadia, Calif	Mar 16, 1980
2 miles	3m.16.75s.	Il Tempo (NZ)	Trentham, Wellington, NZ	Jan 17, 1970
2 1/4 miles	4m.14.6s.35.35	Miss Grillo (US)	Pimlico, Md	Nov 12, 1948
3 miles	5m.15.0s.34.29	Farragut (Mex)	Aguascalientes, Mex	Mar 9, 1941
*Course downhill for 1/4 of a mile.				
†Hand-timed.				
††Electrically timed.				
‡Straight courses.				
•World record speeds.				



and standing 4 ft 11 in. (His wife is nearly 1 ft taller than he is.) From Mar 1949 through 1986, he rode 8,621 winners from 38,853 mounts, earning \$110,622,090.

Laffitt Pincay, Jr (b Dec 29, 1946, Panama City, Panama) has earned a record \$116,222,655, 1966 to 1987, including \$13,415,049 won in 1985, the most ever won by a jockey in a single year.

Chris McCarron (US), (b 1955), won a total of 546 races in 1974 out of 2,199 mounts, an average of 6 races a day.

The most winners ridden on one card is 8 by Hubert S. Jones, 17, out of 13 mounts at Caliente, Calif, on June 11, 1944 (of which 5 were photo-finishes); by Oscar Barattuci at Rosario, Argentina, on Dec 15, 1957; by Dave Gall from 10 mounts at Cahokia Downs, East St Louis, Ill, on Oct 18, 1978; by Chris Loseth, 29, out of 10 mounts at Exhibition Park in Vancouver, BC, Canada on Apr 9, 1984, and by Robert Williams from 10 rides at Lincoln, Neb, Sept 29, 1984.

The youngest jockey was Australian-born Frank Wootton (1893-1940) (Eng champion 1909-12), who rode his first winner in Africa, aged 9 years 10 months. The oldest jockey is Bill Shoemaker (see above) who won the Kentucky Derby in 1986 at the age of 55.

The lightest jockey recorded was Kitchener (Eng) (d 1872), who won the Chester Cup on "Red Deer" in 1844 at 49 lb. He is said to have weighed only 35 lb in 1840.

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## ICE SKATING

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### Origins

The earliest skates were made of animal bones, such as those found in France and thought to be 20,000 years old. The first reference to skating is in early Norse literature c. 200 AD but the earliest report of skating as a sport or pastime is in a British chronicle by William Fitzstephen of 1180. The first club was founded in Edinburgh in 1744, and the earliest artificial ice rink was opened in London in 1876.

Speed skating or racing must have taken place from the earliest times, although curved rinks, especially for racing, did not appear until the 1880s. Two Americans developed figure skating into an art. E. W. Bushnell invented steel blades in 1848 and thereby provided the precision skate needed for ever more intricate figures, and the first true innovator and teacher was Jackson Haines. He was a ballet master who transferred the artistry of the dance to the ice when he went to Vienna in 1864. Louis Rubinstein was a founder of the Amateur Skating Association of Canada in 1878, the first national governing body in the world. In 1892 the International Skating Union was set up at Scheveningen, Netherlands.

### Longest Race

The longest race regularly held was the "Elfstedentocht" ("Tour of the Eleven Towns") in The Netherlands, covering 200 km (124 miles 483 yd). The fastest time was 6 hours 5 min 12 sec by Jan-Roelof Kruithof (Neth) on Feb 25, 1979 at Oulu, Finland. Kruithof won the

race 8 times, 1974, 76-77, 79-83. The race was transferred to Finland in 1964 and subsequently to Canada, but it was returned to The Netherlands in 1985. An estimated 16,000 skaters took part in 1986.

## Largest Rink

The world's largest indoor artificial ice rink is in the Moscow Olympic arena which has an ice area of 86,800 sq ft. The largest outdoors is the Fujikyu Highland Promenade Rink complex in Japan with 285,243 sq ft.

## Marathon

The longest recorded skating marathon is 109 hours 5 min by Austin McKinley of Christchurch, NZ, June 21-25, 1977.

# FIGURE SKATING

## Most Difficult Jumps

Many of the most difficult jumps in skating are named after their originators, such as the Axel (after Axel Paulsen of Norway) and the Salchow (after Ulrich Salchow of Sweden).

The first woman to attempt a jump in major competition is said to have been Theresa Weld (US) who was reprimanded for her "unfeminine behavior" in the 1920 Olympic events. Cecilia Colledge (GB) was the first woman to achieve two turns in the air a few years later. In the 1962 World Championships Donald Jackson (Can) performed the first triple Lutz in a major competition and in the 1978 championships Vern Taylor, another Canadian, achieved the first triple Axel. Among women, the first triple Salchow was done by Sonja Morgenstern (E Ger) in 1972, and the first triple Lutz by Denise Beilmann



**GOLD MEDALIST** Scott Hamilton was the only American ice skater to win a gold medal in the 1984 Olympics.





**MOVIE STAR** Sonja Henie (Norway) earned an estimated \$47 million in ice shows and films after winning 3 Olympic golds in 1928-32-36 and 10 world titles.

**HIGHEST FIGURE SKATING MARKS:** Jayne Torvill and Christopher Dean (GB) have been leading all competition with maximum sixes from all 9 judges since 1983.



(Switz) in the 1978 European championships. Incidentally, the latter has a spin named after her.

The first quadruple twist was performed by Marina Tcherkasova and Sergei Shakrai (USSR) in a pairs competition in Helsinki in 1977. They were able to achieve this because of the unusual difference in size between the tiny 12-year-old girl and her tall male partner.

A backward somersault jump was successfully negotiated by Terry Kubicka (US) in the 1976 world championships but it was immediately banned as being too dangerous.

## Highest Marks

The highest tally of maximum "six" marks awarded in an interna-

tional championship was 29 to Jayne Torvill and Christopher Dean (GB) in the World Ice Dance Championships at Ottawa, Canada, Mar 22-24, 1984. This comprised 7 in the compulsory dances, a perfect set of 9 for presentation in the set pattern dance and 13 in the free dance, including another perfect set from all 9 judges for artistic presentation. They previously gained a perfect set of 9 "sixes" for artistic presentation in the free dance at the 1983 World Championships in Helsinki, Finland, and at the 1984 Olympic Games in Sarajevo, Yugoslavia. In their career Torvill and Dean received a record total of 136 "sixes."

Donald Jackson (Canada) was awarded 7 "sixes" (the most by a soloist) in the world men's championship at Prague, Czechoslovakia, in 1962.

## World Titles

The greatest number of individual world men's figure skating titles (instituted 1896) is 10 by Ulrich Salchow (1877-1949), of Sweden, in 1901-05, 07-11. The women's record (instituted 1906) is also 10 individual titles, by Sonja Henie (Apr 8, 1912-Oct 12, 1969), of Norway, between 1927 and 1936. Irina Rodnina (b Sept 12, 1949), of the USSR, has won 10 pairs titles (instituted 1908)—four with Aleksiy Ulanov (1969-72) and six with her husband Aleksandr Zaitsev (1973-78). The most ice dance titles (instituted 1952) won is 6 by Aleksandr Gorshkov (b Oct 8, 1946) and his wife, Ludmilla Pakhomova (1946-86), both of the USSR, in 1970-74 and 76.

## Olympic Titles in Figure Skating

The most Olympic gold medals won by a figure skater is 3 by Gillis Grafström (1893-1938), of Sweden, in 1920, 24 and 28 (also silver medal in 1932); by Sonja Henie (see *World Titles*) in 1928, 32 and 36; and by Irina Rodnina (see *World Titles*) in the pairs event in 1972, 76 and 80.

## Distance

Robin Cousins (GB) (b Mar 17, 1957) achieved 19 ft 1 in in an Axel jump and 18 ft with a back flip at Richmond Ice Rink, Surrey, Eng on Nov 16, 1983.

# SPEED SKATING

## World Titles

The greatest number of world overall titles (instituted 1893) won by any skater is 5 by Oscar Mathisen (Norway) (1888-1954) in 1908-09, 12-14, and Clas Thunberg (1893-1973) of Finland, in 1923, 25, 28-29 and 31. The most titles won by a woman is 4 by Mrs Inga Voronina, née Artomonova (1936-66) of Moscow, USSR, in 1957-58, 62 and 65; by Mrs Atje Keulen-Deelstra of The Netherlands (b Dec 31, 1938) in 1970, 72-74; and by Karin Kania née Enke (b June 20, 1961) (E Ger) 1982, 84 and 86-87. Kania also won a record 6 overall titles at the World Sprint Championships 1980-81, 1983-84, and 1986-87.

The record score achieved in the world overall title is 162.973

points by Eric Heiden (US) at Oslo, Norway, Feb 10-11, 1979. The record by a woman is 171.760 points by Andrea Schöne of E. Germany at Medeo, USSR Mar 23-24, 1984.

## Olympic Titles

The most Olympic gold medals won in speed skating is 6 by Lidia Skoblikova (b March 8, 1939), of Chelyabinsk, USSR, in 1960 (2) and 1964 (4). The male record is held by Clas Thunberg (see above) with 5 gold (including 1 tied gold) and also 1 silver in 1924 and 1 tied bronze in 1928; and by Eric Heiden (US) (b June 14, 1958) who won 5 gold medals, all at Lake Placid, NY, in 1980.

## 24 Hours

Ton Smits (Neth) skated 314.65 mi in 24 hours in Eindhoven, Neth, Dec 15-16, 1984.



**SPEED SKATING DOUBLE** ▲  
**GOLD MEDALIST.** At the 1985 Winter Olympics, Karin Enke Kania (E Ger) won 2 golds and in 1986 regained 4 of her world records.

▲  
**AMERICAN SPEEDSTER:**  
His unprecedented 5-event sweep of the 1980 Olympic speed skating competition made Eric Heiden the first Olympic athlete to earn 5 individual (that is, not relay or team) gold medals at one Games.



## WORLD SPEED SKATING RECORDS (Ratified by the I.S.U.)

<i>Distance</i>	<i>min:sec</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
<b>MEN</b>				
500 m	36.23*	Nick Thometz (USA)	Medeo, USSR	Mar 26, 1987
1000 m	1.12.05	Nick Thometz (USA)	Medeo, USSR	Mar 27, 1987
1500 m	1.52.48	Andrey Bobrov (USSR)	Medeo, USSR	Mar 27, 1987
3000 m	3.59.27	Leo Visser (Neth)	Heerenveen, Netherlands	Mar 19, 1987
5000 m	6.47.01	Leo Visser (Neth)	Heerenveen, Netherlands	Feb 14, 1987
10,000 m	14.03.92	Geir Karlstad (Nor)	Heerenveen, Netherlands	Feb 15, 1987
<b>WOMEN</b>				
500 m	39.28	Bonnie Blair (USA)	Medeo, USSR	Mar 26, 1987
1000 m	1.18.84	Karin Kania ( <i>née</i> Enke) (GDR)	Karulzawa, Japan	Feb 23, 1986
1500 m	1.59.30	Karin Kania (GDR)	Medeo, USSR	Mar 22, 1986
3000 m	4.16.85	Yvonne van Gennip (Neth)	Heerenveen, Netherlands	Mar 19, 1987
5000 m	7.20.36	Yvonne van Gennip (Neth)	Heerenveen, Netherlands	Mar 20, 1987

\*Represents an average speed of 30.87 mph. Note that Medeo, Alma-Ata, USSR is situated at an altitude of 1,691 m.

## MARATHONS (Running)

The inaugural marathon races were staged in Greece in 1896. There were two trial races before the first Olympic marathon at Athens. The race commemorated the legendary run of an unknown Greek courier, possibly Pheidippides, who in 490 bc ran some 24 miles from the Plain of Marathon to Athens with the news of a Greek victory over the numerically superior Persian army. Delivering his message—"Rejoice! We have won."—he collapsed and died. The Olympic races were run over varying distances until 1924 when the distance was standardized at 26 miles 385 yd, the distance first instituted in the 1908 Games in London.

There are no official records for the distance due to the variety of courses used and their varying severity, but the figures below are generally accepted to be the progressive best-known times on record



The largest field in a marathon has been 23,000 starters in Mexico City on Sept 28, 1986.

The oldest man to complete a marathon was Dimitrion Yordanidis (Greece), aged 98, in Athens, Greece on Oct 10, 1976. He finished in 7 hours 33 min. Thelma Pitt-Turner (New Zealand) set the women's record in August 1985, completing the Hastings, New Zealand marathon in 7 hours 58 min at the age of 82.

## Marathon Progressive Record

### Men

2:55:18.4	Johnny Hayes (US)	1908
2:52:45.4	Robert Fowler (US)	1909
2:46:52.6	James Clark (US)	1909
2:46:04.6	Albert Raines (US)	1909
2:42:31.0	Fred Barrett (GB)	1909
2:40:34.2	Thore Johansson (Swed)	1909
2:38:16.2	Harry Green (GB)	1913
2:36:06.6	Alexis Ahlgren (Swed)	1913
2:32:35.8	Hannes Kolehmainen (Fin)	1920
2:29:01.8	Albert Michelsen (US)	1925
2:27:49.0	Fusashige Suzuki (Japan)	1925
2:26:44.0	Yasao Ikenaka (Japan)	1935
2:26:42.0	Kitei Son (Japan)	1935
2:25:39.0	Yun Bok Suh (S Korea)	1947
2:20:42.2	Jim Peters (GB)	1952
2:18:40.2	Jim Peters (GB)	1953
2:18:34.8	Jim Peters (GB)	1953
2:17:39.4	Jim Peters (GB)	1954
2:15:17.0	Sergey Popov (USSR)	1958
2:15:16.2	Abebe Bikila (Ethiopia)	1960
2:15:15.8	Toru Terasawa (Japan)	1963
2:14:28.0*	Buddy Edelen (US)	1963
2:13:55.0	Basil Heatley (GB)	1964
2:12:11.2	Abebe Bikila (Ethiopia)	1964
2:12:00.0	Morio Shigematsu (Japan)	1965
2:09:36.4	Derek Clayton (Australia)	1967
2:08:33.6	Derek Clayton (Australia)	1969
2:08:05.2†	Alberto Salazar (US)	1981
2:08:05.0	Stephen Jones (GB)	1984
2:07:11.06	Carlos Lopez (Port)	1985

### Women

3:40:22.0	Violet Piercy (GB)	1926
3:27:45.0	Dale Greig (GB)	1964
3:19:33.0	Mildred Sampson (NZ)	1964
3:15:22.0	Maureen Wilton (Can)	1967
3:07:26.0	Anni Pedersen (W Ger)	1967
3:02:53.0	Caroline Walker (US)	1970
3:01:42.0	Elizabeth Bonner (US)	1971
2:46:30.0	Adrienne Beames (Australia)	1971
2:46:24.0	Chantal Langlace (France)	1974
2:43:54.5	Jackie Hansen (US)	1974

\* 36 yd (about 6 sec) under standard distance.

† NYC course later found to be 170 yd short.

2:42:24.0	Liane Winter (W Ger)	1975
2:40:15.8	Christa Vahlensieck (W Ger)	1975
2:38:19.0	Jackie Hansen (US)	1975
2:35:15.4	Chantal Langlace (France)	1977
2:34:47.5	Christa Vahlensieck (W Ger)	1977
2:32:29.8†	Grete Waitz (Nor)	1978
2:27:32.6†	Grete Waitz (Nor)	1979
2:25:41.0†	Grete Waitz (Nor)	1980
2:25:28.8†	Allison Roe (NZ)	1981
2:25:28.7†	Grete Waitz (Nor)	1983
2:22:43.0	Joan Benoit (US)	1984
2:21:06.0	Ingrid Kristiansen (Nor)	1985

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## MOTORCYCLING

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### Earliest Races and Circuits

The first motorcycle race was held on an oval track of 1 mi at Sheen House, Richmond, Surrey, England, on Nov 29, 1897, won by Charles Jarrott (1877-1944) on a Fournier.

The Auto-Cycle Union Tourist Trophy (TT) series was first held on the 15.81-mile "Peel" ("St John's") course on the Isle of Man on May 28, 1907, and is still run on the island, on the "Mountain" circuit.

### Longest Circuit

The 37.73-mile "Mountain" circuit on the Isle of Man, over which the two main TT races have been run since 1911, has 264 curves and corners and is the longest used for any motorcycle race.

### Fastest Circuits

The highest average lap speed attained on any closed circuit is 160.288 mph by Yvon du Hamel (Canada) (b 1941) on a modified 903-cc four-cylinder Kawasaki Z1 on the 31-degree banked 2.5-mile Daytona International Speedway, Fla, in March 1973. His lap time was 56.149 sec.

The fastest road circuit has been the Francorchamps circuit near Spa, Belgium, but the fastest now is the Portstewart-Coleraine-Portrush circuit in Londonderry, N Ireland. The lap record (10.1 mile lap) is 4 min 53.2 sec (average speed 124.060 mph) by John Glyn Williams (1946-78) on a 747-cc four-cylinder Yamaha on lap five of the 750-cc event of the North-West 200, on May 21, 1977. Minor circuit changes prior to 1986 have resulted in slower times.

The TT circuit (Isle of Man) speed record is 118.47 mph by Joey Dunlop on a Honda on June 4, 1984.

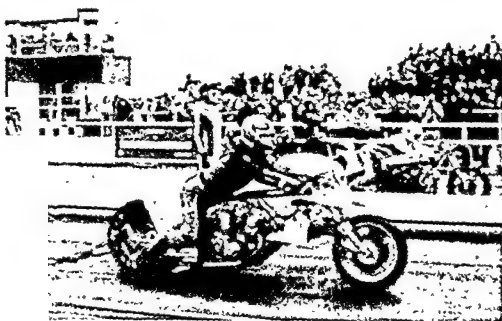
### Fastest Race

The fastest track race in the world was held at Grenzlandring, W Germany, in 1939. It was won by Georg "Schorsch" Meier (b

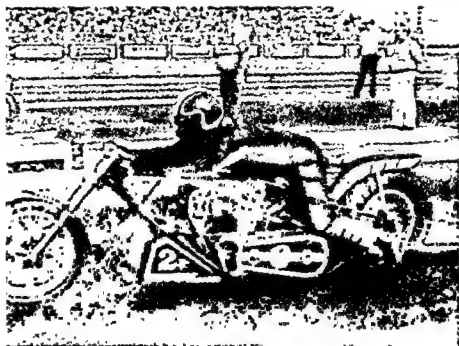




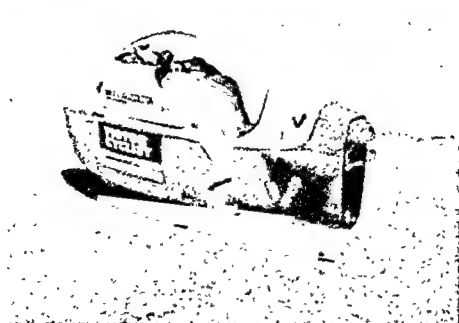
races in the world championship series between Apr 24, 1965, Aug 29, 1976, including a record 19 in 1970, also achieved by St Michael "Mike" Hailwood, (b Oxford, England, 1940, d 1981) 1966.



**QUICK AS VINK:** Henk Vink of The Netherlands set world record 1977 for 1 kilometer at 440 yds on Kawasaki in 2-way runs standing sta



**FASTEST VELOCITY:** Elmer Trett set 201.34 mph end of a 440 run from a standing sta set the record highest term velocity.



**CROSS-U S TREK:** In the 260-lb 125-c revised Suzuki without refu Matt Guzzetta rode 2,443 miles from San Diego to Daytona Beach in 11.83 gallons Mar 1984, for record 214.3 mpg.

A record 3 world trials championships have been won by Yrjö Vesterinen (Finland) (1976-8) and by Eddie Lejeune (Belgium).

Klaus Enders (Germany) (b 1937) won 6 world sidecar titles, 1967, 69-70, 72-74.

Angel Roldan Nieto (Spain) (b Jan 25, 1947) won a record seven 125-cc titles, 1971-72, 1979, and 1981-84.

Alberto "Johnny" Cecotto (b Caracas, Venezuela, Jan 25, 1956) was the youngest person to win a world championship. He was aged 19 years 211 days when he won the 350-cc title on Aug 24, 1975. The oldest was Hermann-Peter Müller (1909-76) of W Germany, who won the 250-cc title in 1955, aged 46.

## Cross-US Trek

Joseph Railton (b 1920) of Park City, Utah, rode a motorcycle from San Francisco to NYC in 64 hours June 1-4, 1985 for the fastest transcontinental trip, averaging 45.84 mph over the 2,934-mi distance.

Matthew P. Guzzetta, 31, of Don Vesco Products, Spring Valley, Calif claims to have ridden a 260-lb, 125-cc revised Suzuki motorcycle whose shell he designed and built, from San Diego, Calif, to Daytona Beach, Fla, without refueling, Mar 3-17, 1984. With a writer-friend, Gerald Foster, he covered the 2,443 mi on 11.83 gallons, for a record consumption of 214.37 mpg. In a snowstorm, they had to put the motorcycle in a van for 36 mi.

Joël Robert (b Chatelet, Belgium, Nov 11, 1943) has won six 250-cc moto-cross (also known as "scrambles") world championships (1964, 68-72). Between Apr 25, 1964, and June 18, 1972, he won a record fifty 250-cc Grands Prix. He became the youngest moto-cross world champion on July 12, 1964, when he won the 250-cc championship aged 20 years 244 days.

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## OLYMPIC GAMES

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*Note: These records include the un-numbered Games held at Athens in 1906. World Records set at the 1984 Olympiad in Los Angeles will be found under some of the sports.*

(An entire book, the *Guinness Book of Olympic Records*, is available.)

### Origins

The earliest celebration of the ancient Olympic Games of which there is a certain record is that of July 776 bc (when Coroibos, a cook from Elis, won a foot race), though their origin probably dates from perhaps as early as c. 1370 bc. The ancient Games were terminated by an order issued in Milan in 393 ad by Theodosius I, "the Great" (c. 346-95), Emperor of Rome. At the instigation of Pierre de Fredi, Baron de Coubertin (1863-1937), the Olympic Games of the modern era were inaugurated in Athens on Apr 6, 1896.

## Most Medals

In the ancient Olympic Games, victors were given a chaplet (head garland) of olive leaves. Leonidas of Rhodos won 12 running titles from 164 to 152 bc.

The most individual gold medals won by a male competitor in the modern Games is 10 by Raymond Clarence Ewry (US) (b Oct 14, 1874, at Lafayette, Ind; d Sept 29, 1937), a jumper (see *Track and Field*). The female record is 7 by Vera Caslavská-Odložil (b May 3, 1942) of Czechoslovakia, a gymnast.

The only Olympian to win 4 consecutive individual titles in the same event has been Alfred A. Oerter (b Sept 19, 1936, NYC) who won the discus title in 1956, 60, 64 and 68.

The only man to win a gold medal in both the Summer and Winter Games is Edward F. Eagan (US) (1898–1967) who won the 1920 light-heavy-weight boxing title and was a member of the winning bob in 1932.

Larissa Latynina (b Dec 27, 1934) (USSR) won a record 18 medals (see *Gymnastics*). The record at one celebration is 8 medals by Alexander Ditiatin (b Aug 7, 1957) (USSR) in 1980.

## c Sports

year of first inclusion)

1900)

n (exhibition 1988)

(demonstration 1988)

1 (1936)

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g (including Diving, Synchronized Swimming,

r Polo) (1896)

nis (1988)

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l Field (1896)

l (1964)

ifting (1896)

ir Races for Disabled (exhibition 1988)

(1896)

(1900)



## Youngest and Oldest Medalists

The youngest woman to win a gold medal is Marjorie Gestring (US) (b Nov 18, 1922) aged 13 years 9 months, in the 1936 women's springboard event.

The oldest person was Oscar Swahn (Swe) who won a silver medal for shooting in 1920, aged 72 years 280 days. Swahn had won a gold medal in 1912 at the record age of 64 years 258 days.

The youngest to win an Olympic gold medal was a French boy who coxed the winning Dutch rowing pairs crew in the 1900 Games. His name is not known as he was a last-minute substitute but he was no more than 10 years old and may even have been as young as seven.

## Olympic Medals Restored

The star of the 1912 Olympic Games was an American Indian named Jim Thorpe. Held in Stockholm, the Games provided him with an opportunity to win two gold medals, one in the decathlon and one in the pentathlon. He also placed well in the high jump and long jump. He was greeted in New York with a ticker-tape parade, but in 1913 the International Olympic Committee demanded his medals back after it had come to light that prior to the Olympics he had played baseball for \$25 a week and therefore was not strictly an amateur athlete. On Oct 13, 1982, 29 years after Thorpe's death, the I.O.C. presented his gold medals to his children and reinstated his name in the record books.

## Longest Span

The longest competitive span of any Olympic competitor is 40 years by Dr Ivan Osier (Denmark) (1888-1965), in fencing, 1908-32 and 48, and by Magnus Konow (Norway) (1887-1972) in yachting, 1908-20 and 36-48. The longest span for a woman is 24 years (1932-56) by the Austrian fencer Ellen Müller-Preiss. Raimondo d'Inzeo (b Feb 8, 1925) competed for Italy in equestrian events in a record 8 celebrations (1948-76), gaining one gold medal, 2 silver and 3 bronze medals. Janice Lee York Romary (b Aug 6, 1928), the US fencer, competed in all 6 Games from 1948 to 1968, and Lia Manoliu (Romania) (b Apr 25, 1932) competed 1952-72, winning the discus title in 1968.

## Most Olympic Gold Medals at One Games

Mark Spitz (US), the swimmer, won a record 7 gold medals at one celebration (4 individual and 3 relay) at Munich in 1972.

The most gold medals won in individual events at one celebration is 5 by speed skater Eric Heiden (b June 14, 1958) (US) at Lake Placid, NY in 1980.

## Most and Fewest Competitors

The greatest number of competitors in any Summer Olympic Games has been 7,147 at Munich in 1972. A record 122 countries competed in the 1972 Munich Games. The fewest was 311 competitors from 13 countries in 1896. In 1904 only 12 countries participated. The largest team was 880 men and 4 women from France at the 1900 Games in Paris.

## Largest Crowds

The largest crowd at any Olympic site was 150,000 at the 1952 ski-jumping at the Holmenkollen, outside Oslo, Norway. Estimates of the number of spectators of the marathon race through Tokyo on Oct 21, 1964, have ranged from 500,000 to 1,500,000.

The total spectator attendance at Los Angeles in 1984 was given as 5,797,923.

## Most Participations

Five countries have never failed to be represented at the 21 celebrations of the Summer Games: Australia, France, Greece, Great Britain and Switzerland. Of these, only Great Britain has been present at all Winter celebrations as well.

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## RODEO

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### Origins

While there is no known "first rodeo," as early as 1860 cowboys were competing at railheads and on trails for unofficial titles for bronc riding and other skills of their trade. After the great cattle drives were eliminated, due to the introduction of more and more railroads, large ranches began to "give a rodeo." As towns developed, they adopted the rodeo with Cheyenne, Wyo, claiming to have had the first in 1872.

A rodeo has been held each year in Prescott, Ariz, on the Fourth of July since 1888.

The sport was not organized until 1936 when a group of rodeo contestants founded the Cowboys Turtle Association (now the Professional Rodeo Cowboys Association) to standardize the sport. The official events now are saddle bronc riding, bareback riding, bull riding, calf roping, steer wrestling, and, in some states, team roping.

### Largest Prize Money

The largest rodeo in the world is the U.S. National Finals Rodeo, held annually in Dec by the PRCA. The total prize money for the 1985 rodeo held in Las Vegas was \$1,790,000.

The top 24 cowboys in the 1984 championship standings were invited to compete in the Winston Tour during which \$1 million was awarded in prizes for calf roping, saddle bronc riding, bareback riding, steer wrestling, bull riding, barrel racing and team roping.

### Most World Titles and Highest Earnings

The record number of all-round titles in the Professional Rodeo Cowboys Association world championships is 6 by Larry Mahan (US) (b Nov 21, 1943) in 1966-70 and 1973 and, consecutively, 1974-9 by Tom Ferguson (b Dec 20, 1950). Tom Ferguson had record ~~career~~ earnings of \$1,049,744 to 1986. Jim Shoulders (b 1928) of ~~Hennepin, Minn.~~ Okla has won a record 16 world championships between 1949 and



1959. The record figure for prize money in a single season is \$166,042 by Lewis Feild in 1986.

Charmayne James (b June 23, 1970), of Clayton, NM, won a record \$151,969 in women's barrel (slalom) racing in 1986.

### Youngest Champion

The youngest winner of a world title is Metha Brorsen of Okla, who was only 11 years old when she won the International Rodeo Association Cowgirls barrel-racing event in 1975.

The youngest women's champion in the female division of the Professional Rodeo Cowboys Association competition is Jackie Jo Perrin of Antlers, Okla, who won the barrel-racing title in 1977 at age 13.

### Time Records

Records for timed events, such as calf roping and steer wrestling, are not always comparable, because of the widely varying conditions due to the size of arenas and amount of start given the stock. The fastest time recently recorded for roping a calf is 5.7 sec by Lee Phillips in Assiniboia, Saskatchewan, Canada, in 1978, and the fastest time for overcoming a steer is 2.4 sec by James Bynum at Marietta, Okla, in 1955; by Carl Deaton at Tulsa, Okla, in 1976; and by Gene Melton at Pecatonica, Ill, in 1976.

The standard required time to stay on in bareback, saddle brone and bull riding events is 8 sec. In the now discontinued ride-to-a-finish events, rodeo riders have been recorded to have survived 15 min or more, until the mount had not a buck left in it.

The highest score in bull riding was 98 points out of a possible 100 by Denny Flynn on "Red Lightning" at Palestine, Ill, in 1979.

### Champion Bull

The top bucking bull was probably "Tornado," who bucked out of the chute 220 times before Freckles Brown in 1967 became the first cowboy to ride him to the 8-sec bell. "Tornado" retired a year later after a 14-year career.

### Champion Brone

Traditionally a brone called "Midnight" owned by Jim McNab of Alberta, Canada, was never ridden in 12 appearances at the Calgary Stampede.

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## SKIING

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### Origins

The most ancient ski in existence was found well preserved in a peat bog at Höting, Sweden, dating from c. 2500 bc. However, in 1934 a Russian archaeologist discovered a rock carving of a skier at Bes-sovysledki, USSR, which dates from c. 6000 bc. These early skiers



used the bones of animals whereas wooden skis appear to have been introduced to Europe from Asia. The first reference in literature is in a work by Procopius c. 550 AD who referred to "Gliding Finns." Additionally in the Scandinavian sagas there occur gods of skiing. By 1199, the Danish historian Saxo was reporting the military use of troops on skis by Sigurdsson Sverrir, the Norwegian King.

The modern sport did not develop until 1843 when the first known competition for civilians took place at Tromsø, Norway. The first ski club, named the Trysil Shooting and Skiing Club, was founded in Norway in 1861. Twenty years later ski bindings were invented by Sondre Nordheim, from Morgedal in the Telemark area, and the people of this region were the pioneers of the sport. The legendary "Snowshoe" Thompson, whose parents were Norwegian, was the earliest well-known skier in the US (1856) although skiing took place here in the 1840s. It was not until Olaf Kjelandsberg went to Switzerland in 1881 that the sport began to take hold in that country, and in 1889 one of the earliest of British exponents, Arthur Conan Doyle, began skiing at Davos, Switz. The first downhill race—as opposed to the Scandinavian races across country—was held at Kitzbühel, Austria in 1908. The International Ski Federation (FIS) was founded on Feb 2, 1924. The Winter Olympics were inaugurated on Jan 25, 1924, and Alpine events have been included since 1936. The FIS recognizes both the Winter Olympics and the separate World Ski Championships as world championships.

## Most Alpine World Titles

The World Alpine Championships were inaugurated at Mürren, Switzerland, in 1931. The greatest number of titles won has been 13 by Christel Cranz (b July 1, 1914), of Germany, with 7 individual—4 Slalom (1934, 37–39) and 3 Downhill (1935, 37, 39); and 5 Combined (1934–35, 37–39). She also won the gold medal for the Combined in the 1936 Olympics. The most titles won by a man is 7 by Anton "Toni" Sailer (b Nov 17, 1935), of Austria, who won all 4 in 1956 (Giant Slalom, Slalom, Downhill and the non-Olympic Alpine Combination) and the Downhill, Giant Slalom and Combined in 1958.

## Most Olympic Victories

Marja-Liisa Haemäläinen (Fin), after having twice won the women's World Cup title in Nordic, 1983–84, won all 3 individual gold medals in the 1984 Olympics.

The most Olympic gold medals won by a man for skiing is 4 by Sixten Jernberg (b Feb 6, 1929), of Sweden, in 1956–64 (including one for a relay). In addition, Jernberg has won 3 silver and 2 bronze medals for a record 9 Olympic medals. Four were also won by Nikolai Zimjatov (b June 28, 1955) (USSR) in 1980 (30 km, 50 km and on the team for 4 × 10-km relay) and in 1984 (30 km).

The only woman to win 4 Olympic gold medals is Galina Koula-kova (b Apr 29, 1942) of USSR who won the 5 km and 10 km (1972) and was a member of the winning 3 × 5-km relay team in 1972 and the 4 × 5-km team in 1976. Koulakova also has won 2 silver and 2 bronze medals, 1968, 76, 80.

The most Olympic gold medals won in men's Alpine skiing is 3, by Anton "Toni" Sailer in 1956 and Jean-Claude Killy in 1968.

## Most Nordic World Titles

The first world Nordic championships were those of the 1924 Winter Olympics at Chamonix, France. The greatest number of World titles won is 9 by Galina Koulakova (b Apr 29, 1942) (USSR), 1968-78. She also won 4 silver and 4 bronze medals for a record total of 17. The most won by a man is 8, including relays, by Sixten Jernberg (b Feb 6, 1929) (Sweden), 1956-64. Johan Grottnumsbraaten



**NORDIC SKIING:** Sweden's Sixten Jernberg earned 4 Olympic golds, and dominated the sport (1956-64) with a total of 9 Olympic medals. (AP)

**WINTER WONDER:** Jean-Claude Killy (France) thrilled his countrymen when he swept all 3 Olympic gold medals in the 1968 Winter Olympics in Grenoble, France. Killy also won the Alpine Combination world title that year and 2 other world titles in 1966.



(1899–1942), of Norway, won 6 individual titles (2 at 18 km cross-country and 4 Nordic Combined) in 1926–32. The record for a jumper is 5 by Birger Ruud (b Aug 23, 1911), of Norway, in 1931–32 and 1935–37. Ruud is the only person to win Olympic titles in each of the dissimilar Alpine and Nordic disciplines. In 1936 he won the ski-jumping and the Alpine downhill (which was not then a separate event, but only a segment of the Combined event).

## World Cup

The Alpine World Cup was instituted in 1967, and extended to include Nordic in 1981.

The women's cup has been won 6 times by the 5-ft-6-in 150-lb Annemarie Moser (*née* Proll) (Austria) in 1971–75 and 79. From Dec 1972 to Jan 1974 she completed a record sequence of 11 consecutive downhill victories. She holds the women's record of 62 individual event wins (1970–79).

The most by a man is 85 by Ingemar Stenmark (b Mar 18, 1956) (Sweden), 1974–87, including a record 13 in one season in 1979. Franz Klammer (Austria) (b Dec 3, 1953) won a record 35 downhill races, 1974–85.

Alexander Zavalov (USSR) (b June 2, 1955) has two wins, 1981 and 1983, in the cross-country or Nordic World Cup (inst 1979). Also with two wins are Marja-Liisa Haemäläinen (Finland) in 1983 and 1984, and Gunde Svan (Sweden) in 1984 and 1985. The jumping World Cup (inst 1980) has been twice won by Armin Kogler (Austria) (b Sept 4, 1959) 1981–2, and by Matti Nykanen (Finland) 1983 and 1985.

## Duration

The record distance covered in 48 hours of Nordic skiing is 319 mi 205 yd by Bjorn Lokken (Norway) (b Nov 27, 1937) Mar 11–13, 1982.

In 24 hours Teuvo Rantanen covered 195 miles at Jyväskylä, Finland Mar 24–25, 1984. The women's record is 122.9 miles by Marlene Severs at East Burke, Vt, Mar 7–8, 1985.

The longest time spent in downhill skiing under regulated conditions is 83 hours by Dave Phillips and Gerry O'Neill at Grouse Mt, N Vancouver, Canada, Feb 20–23, 1986. No time was wasted waiting for the lift.

Luc Labrie at Daie Comeau, Quebec, Canada, skied alone for 138 hours, Feb 20–25, 1984.

## Highest Speed—Cross Country

Bill Koch (US) (b Apr 13, 1943) on Mar 26, 1981 skied ten times around a 5-km (3.11-mi) loop on Marlborough Pond, near Putney, Vt. He completed the 50 km in 1 hour 59 min 47 sec, an average speed of 15.57 mph. A race includes uphill and downhill sections; the record time for a 50-km race is 2 hours 10 min 49.9 sec by Gunde Svan in the 1985 World Championships, an average speed of 14.25 mph. The record for a 15-km Olympic or World Championship race is 38 min 52.5 sec by Oddvar Braa (Nor) (b Mar 16, 1951) at the 1982 World Championships, an average speed of 14.38 mph.



**AMERICAN TWINS WON** gold and silver in Giant Slalom in 1984 Olympics: Phil Mahre (above) beat his twin brother Steve by 11/100ths of a second.



**TRIPLE WINNER IN 1984 OLYMPICS:** Marja-Liisa Haemäläinen (Fin) dominated the women's cross-country skiing events, taking all three individual gold medals.

## Ski-Bob

The ski-bob was invented by J. C. Stevenson of Hartford, Conn in 1891, and patented (No. 47334) on Apr 19, 1892 as a "bicycle with ski-runners." The Fédération Internationale de Skibob was founded on Jan 14, 1961 in Innsbruck, Austria, and the first world championships were held at Bad Hofgastein, Austria in 1967. The highest speed attained is 103.4 mph by Erich Brenner (b 1940) (Austria) at Cervinia, Italy, 1964.

The only ski-bobbers to retain a world championship are: men—Alois Fischbauer (Austria) (b Oct 6, 1951), 1973 and 1975, Robe Mühlberger (W Germany), 1979 and 1981; women—Gerhilde Schifkorn (Austria) (b Mar 22, 1950), 1967 and 1969, Gertrude Geberl (Austria) (b Oct 18, 1951), 1971 and 1973.

## BIATHLON

The biathlon, which combines cross-country skiing and rifle shooting, was first included in the Olympic Games in 1960, and world championships were first held in 1958.

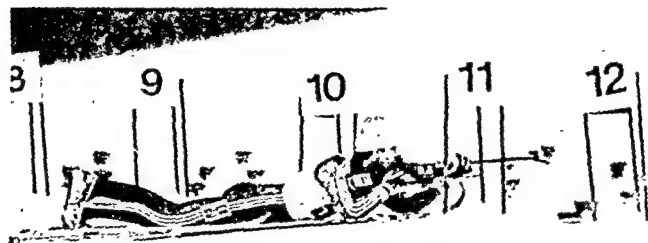
The biathlon is now competed over 10 km, 20 km and a 4 × 7.5 km relay

### Most Olympic Titles

Magnar Solberg (Norway) (b Feb 4, 1937), in 1968 and 1972, is the only man to have won two Olympic individual titles. The USSR has won all five 4 × 7.5 km relay titles, 1968–84. Aleksandr Tikhonov (b Jan 2, 1947) who was a member of the first 4 teams also won a silver in the 1968 20 km.

### Most World Championships

Frank Ullrich (E-Ger) (b Jan 24, 1958) has won a record six individual world titles, at 10 km, 1978–81, including the 1980 Olympics, and at 20 km 1982–83. Aleksandr Tikhonov was in the winning USSR relay teams, 1968–80 and won four individual titles. Ullrich has also won the world cup (inst 1979) three times, 1980–82



**BIATHLON CHAMP:** Frank Ullrich (E-Ger), who has won 6 titles including Olympics, shows how he handles the gun while on a ski run.



in 6 games in the final stages of the 1958 competition. Gerd Müller (W Ger) (b Nov 3, 1945) scored 10 goals in 1970 and 4 in 1974 for the highest aggregate of 14 goals. Fontaine and Jairzinho (Brazil) are the only two players to have scored in every game in a final series, as Jairzinho scored 7 in 6 games in 1970. The most goals scored in the final game is 3 by Geoffrey Hurst (b Dec 8, 1941) for England vs W Germany in 1966. Three players have scored in 2 finals: Vava (real name, Edwaldo Izito Neto) (Brazil) in 1958 and 62, Pelé in 1958 and 70, and Paul Breitner (W Ger) in 1974 and 82.

The highest score in a World Cup match is New Zealand's 13-0 defeat of Fiji in a qualifying match at Auckland on Aug 16, 1981. The highest score in the Finals Tournament is Hungary's 10-1 win over El Salvador at Elche, Spain, on June 15, 1982. The highest match aggregate in the Finals Tournament is 12 when Austria beat Switzerland in 1954.

The highest-scoring team in a Finals Tournament has been W Germany, which scored 25 in 6 games in 1954 for the highest average of 4.17 goals per game. England has the best defensive record, conceding only 3 goals in 6 games in 1966. Curiously, no team has ever failed to score in a World Cup Final.

The fastest goal scored in World Cup competition was one in 27 sec by Bryan Robson for England vs France in Bilbao, Spain, on June 16, 1982.

### World Cup Winners

<i>Winner</i>	<i>Locale</i>
1930 Uruguay	Uruguay
1934 Italy	Italy
1938 Italy	France
1950 Uruguay	Brazil
1954 W Germany	Switzerland
1958 Brazil	Sweden
1962 Brazil	Chile
1966 England	England
1970 Brazil	Mexico
1974 W Germany	W Germany
1978 Argentina	Argentina
1982 Italy	Spain
1986 Argentina	Mexico

### Marathons

The longest outdoor game played was 74½ hours by two teams trying to establish a record at Liswerry Leisure Centre, Gwent, Wales, June 23-26, 1983. The indoor soccer record is 104 hours 10 min set by two teams of students at Summerhill College, Sligo, Ireland, Mar 27-31, 1983.



**NET WEIGHT:** At 6 ft 3 in and 311 lb, Fatty Foulke was the most massive goalkeeper ever. One of his greatest exploits came off the field, however, when, appearing at the dinner table early one evening, Foulke ate the team's entire meal before any of his teammates arrived.



**ATHLETE OF THE CENTURY:** Pelé celebrates one of his 1,285 goals, this one with the NY Cosmos of the NASL. In a seemingly premature poll of 20 international newspapers, the tremendously popular Brazilian soccer star was named "Athlete of the Century" by the French sports magazine "L'Equipe." Jesse Owens was runner-up.

## Individual Scoring

The most goals scored by one player in a first-class match is 16 by Stephan Stanis (*né* Stanikowski, b Poland, July 15, 1913) for Racing Club de Lens vs Aubry-Asturies, in Lens, France, on Dec 13, 1942.

The record number of goals scored by one player in an international match is 10 by Sofus Nielsen (1888-1963) for Denmark vs France (17-1) in the 1908 Olympics and by Gottfried Fuchs for Germany, which beat Russia 16-0 in the 1912 Olympic tournament (consolation event) in Sweden.

The most goals scored in a specified period is 1,216 by Edson Arantes do Nascimento (b Baurú, Brazil, Oct 23, 1940), known as Pelé, the Brazilian inside left, in the period Sept 7, 1956 to Oct 2, 1974 (1,254 games). His best year was 1959 with 126 goals. His *milesimo* (1,000th) came in a penalty for his club, Santos, in the Maracana Stadium, Rio de Janeiro, on Nov 19, 1969, when he was playing in his 909th first-class match. He came out of retirement in 1975 to add to his total with the New York Cosmos of the North American Soccer League. By his retirement on Oct 1, 1977 his total had reached 1,281 in 1,363 games. He added 4 more goals later in special appearances.



Franz ("Bimbo") Binder (b Dec 1, 1911) scored 1,006 goals in 756 games in Austria and Germany between 1930 and 1950.

### Longest Matches

The world duration record for a first-class match is 3 hours 30 min (with interruptions), in the Copa Libertadores championship in Santos, Brazil, Aug 2-3, 1962, when Santos drew 3-3 with Penarol FC of Montevideo, Uruguay.

A match between St Ignatius College Preparatory of San Francisco and Bellarmine College Preparatory of San Jose lasted 4 hours 56 min (230 min playing time) at San Francisco on Feb 6, 1982.

### Goalkeeping

The longest that any goalkeeper has succeeded in preventing any goals being scored past him in international matches is 1,142 min for Dino Zoff (Italy) from Sept 1972 to June 1974.

The biggest goalie on record was Willie J. ("Fatty") Foulke of England (1874-1916) who stood 6 ft 3 in and weighed 311 lb. By the time he died, he tipped the scales at 364 lb. He once stopped a game by snapping the cross bar.

### Fastest Goals

The record for an international match is 3 goals in 3½ min by Willie Hall (Tottenham Hotspur) for England against Ireland on Nov 16, 1938, at Old Trafford, Manchester, England.

The fastest authenticated time for a goal from kickoff is 6 sec by Albert Mundy (1958), Bernie Jones (1962), Keith Smith (1964) and Tommy Langley (1980). Wind-aided goals in 3 sec after kickoff have been scored by a number of players.

In amateur soccer, Tony Bacon, of Schalmont HS, scored three goals vs Ichabod Crane HS in 63 sec at Schenectady, NY on Oct 8, 1975.

### Ball Control

Mikael Palmquist (Sweden) juggled a regulation soccer ball for 14 hours 14 min non-stop with feet, legs and head without the ball ever touching the ground at Göteborg, Sweden, on Apr 6, 1986. He also headed a regulation soccer ball non-stop for 4½ hours at Göteborg, Sweden in 1984.

Radoslav Metdiev Nikolov juggled a ball with his feet for 2 hours 57 min 3 sec while covering a distance of 11.15 mi around a running track at Plovdiv, Bulgaria on Aug 18, 1984. He kicked the ball 18,110 times.

The greatest distance covered while juggling a soccer ball is 13.11 mi by Uno Lindstrom of Boden, Sweden, on May 10, 1985.

### Penalties

All 11 players and 2 substitutes were "booked" before the start of a game played by Glencraig United (UK) because the referee took exception to the chant which greeted his arrival.

## Crowds

The greatest recorded crowd at any soccer match was 205,000 (199,854 paid) for the Brazil vs Uruguay World Cup final in Rio de Janeiro, Brazil, on July 16, 1950.

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## SOFTBALL

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### Origins

Softball, as an indoor derivative of baseball, was invented by George Hancock at the Farragut Boat Club of Chicago, in 1887. Rules were first codified in Minneapolis in 1895 as Kitten Ball. The name Softball was introduced by Walter Hakanson at a meeting of the National Recreation Congress in 1926. The name was adopted throughout the US in 1930. Rules were formalized in 1933 by the International Joint Rules Committee for Softball and adopted by the Amateur Softball Association of America. The International Softball Federation was formed in 1950 as governing body for both fast pitch and slow pitch, and reorganized in 1965.



**DOMINATING SOFTBALL:** Ty Stofflet (US) has struck out 33 in one game and 98 in a year with his underhand fast-pitch.



Her records came in 18 different events. She was a virtual certainty to win at the 1940 Olympic Games, but, of course, war intervened. Retiring in 1945, she made a comeback for the 1952 Games and placed fifth in the 400 m freestyle.

## Most Individual Gold Medals

The record number of individual gold medals won is 4 shared by four swimmers: Charles M. Daniels (US) (1884–1973) (100 m freestyle 1906 and 1908, 220 yd freestyle 1904, 440 yd freestyle 1904); Roland Matthes (E Germany) (b Nov 17, 1950) with 100 m and 200 m backstroke 1968 and 1972; and Mark Spitz and Mrs Patricia McCormick (see next item).

## Most Olympic Gold Medals

The greatest number of Olympic gold medals won is 9 by Mark Andrew Spitz (US) (b Feb 10, 1950), as follows:

100 m freestyle	1972
200 m freestyle	1972
100 m butterfly	1972
200 m butterfly	1972
4 × 100 m freestyle relay	1968 and 1972
4 × 200 m freestyle relay	1968 and 1972
4 × 100 m medley relay	1972

All but one of these performances (the 4 × 200 m relay of 1968) were also world records at the time. He also won a silver (100 m butterfly) and a bronze (100 m freestyle) in 1968 for a record 11 medals.

The record number of gold medals won by a woman is 4 shared by Mrs Patricia McCormick (*née* Keller) (US) (b May 12, 1930) with the high and springboard diving double in 1952 and 1956 (also the women's record for individual golds); by Dawn Fraser (Australia) (b Sept 4, 1937) with the 100 m freestyle (1956, 60, 64) and the 4 × 100 m freestyle relay (1956); and by Kornelia Ender (E Germany) with the 100 and 200 m freestyle (1976), the 100 m butterfly (1976) and the 4 × 100 m medley relay (1976). Dawn Fraser is the only swimmer to win the same event on three successive Olympic occasions.

## Most Olympic Medals

The most medals won is 11 by Spitz, who in addition to his 9 golds (see above), won a silver (100 m butterfly) and a bronze (100 m freestyle), both in 1968.

The most medals won by a woman is 8 by Dawn Fraser, who in addition to her 4 golds (see above) won 4 silvers (400 m freestyle 1956, 4 × 100 m freestyle relay 1960 and 1964, 4 × 100 m medley relay 1960); by Shirley Babashoff (US) who won 2 golds (4 × 100 m freestyle relay 1972 and 1976) and 6 silvers (100 m freestyle 1972, 200 m freestyle 1972 and 1976, 400 m and 800 m freestyle 1976, and 400 m medley 1976); and by Kornelia Ender (E Germany) who, in addition to her 4 golds (see above), won 4 silvers (200 m individual medley 1972, 4 × 100 m medley 1972, 4 × 100 m freestyle 1972 and 1976).

## Swimming into the Movies

The ability to move well in water has been the key to a movie career for a number of champion swimmers. The first star was Australian Annette Kellerman who made a number of silent films, and was the first woman to wear a one-piece bathing suit. However, it was the 1924 and 1928 Olympic gold medalist, Johnny Weissmuller (US), who became the first major box-office attraction from the swimming world, playing the role of Tarzan in a dozen films. His 1928 Olympic teammate, Clarence "Buster" Crabbe, who later won the 1932 400 m freestyle title, also went to Hollywood, where he was the hero in the long-running Buck Rogers and Flash Gordon serials.

A 1932 Olympic champion swimmer, glamorous Eleanor Holm (US) made several movies, although she did not go to Hollywood until she was dropped from the 1936 team for disciplinary reasons. Perhaps the best-known swimming star was Esther Williams, American 100 m champion in 1939 and favorite for the cancelled Olympics of 1940. Turning professional she created a new vogue in the cinema, the swimming musical, in which she was supreme throughout the 1940s. One of her co-stars was Fernando Lamas, who had been a national swimming champion in his native Argentina, and whom she later married.

## Closest Race

In the women's 100 m freestyle final in the 1984 Olympics, Carrie Steinseifer (US) and Nancy Hogshead (US) won in a tie at 55.92 sec, and were both awarded gold medals. It was not in record time, but it was the first dead heat in Olympic swimming history.



**MOST RECORDS:** A young Mark Spitz (17 years old in this photo) is congratulated after setting a world record early in his career. Spitz might be considered the most successful swimmer ever. Of his 9 Olympic gold medals (including the unequalled haul of 7 in 1972), 8 were won in world record time. In his 6-year career, Spitz set a total of 26 world records. (UPI)

## Fastest Swimmers

The fastest 50 m in a 50-m pool is 22.33 sec (5.01 mph) by Matthew Biondi (US) in Orlando, Fla, June 26, 1986.

The fastest by a woman is 25.28 sec (4.42 mph) by Tamara Costache (Rom) (b 1970) at Madrid, Spain, Aug 23, 1986.



**WORLD RECORDS SET IN OLYMPICS:** Michael Gross (left) (W Ger) who set 200-m freestyle and 100-m butterfly records in the 1984 Games, went on to new records in the 400-m freestyle (1985) and 200-m butterfly (1986). Steve Lundquist (below) (US) set the 100-m breaststroke world mark in the 1984 Olympics that still prevails.



**SPRINT CHAMPION:** Matt Biondi (US) broke the 100 m world record 3 times in 1985-86, shortening the time from 49.36 sec to 48.74 sec. He also holds the record for 50 m, and is the anchor man on the record-breaking US 4 x 100 m relay team. (All-*Sport*)

## Greatest Lifetime Distance

Gustave Brickner (b Feb 10, 1912) of Charleroi, Pa, recorded 38.512 mi of swimming from 1926 to his retirement in Nov 1986.

## Largest Pools

The largest swimming pool in the world is the salt-water Orthlieb Pool in Casablanca, Morocco. It is 480 m (1,574 ft) long, 75 m (246 ft) wide, and has an area of 8.9 acres.

The world's largest competition pool is at Osaka, Japan. It accommodates 13,614 spectators.

## Synchronized Swimming

Started in 1904 by Annette Kellerman when she swam underwater and performed water ballets on the stage of the NYC Hippodrome, this did not become an Olympic event for women until 1984 at Los Angeles. The contestants are judged on presentation and showmanship as well as the athlete's skill and technique.

## Underwater Swimming

Paul Cryne (UK) and Samir Sawan al Aw swam 49.04 mi underwater in a 24-hour period at Doha, Qatar Feb 21-22, 1985 using sub-aqua equipment. They were swimming underwater for 95.5% of the time.

The first underwater cross-Channel swim was achieved by Fred Baldasare (US), aged 38, who completed a 42-mile swim from France to England with scuba in 18 hours 1 min, July 10-11, 1962.

Tony Boyle, Eddie McGettigan, Laurence Thermes and Gearoid Murphy swam a relay of 332.88 mi underwater in 168 hours using sub-aqua equipment at the Mosney Holiday Centre, Co. Meath, Ireland, June 22-29, 1985.

## Treading Water

The duration record for treading water (vertical posture in an 8-ft square without touching the pool sides or bottom or lane markers) is 98½ hours set by Reginald (Moon) Huffstetler of Belmont, NC, at The Reef in Myrtle Beach, SC, May 20-24, 1986.

Albert Rizzo trod water in the sea at Gzira, Malta, for 108 hours 9 min Sept 7-12, 1983.

At distances recognized by the Fédération Internationale de Natation Amateur as of July 16, 1983, FINA no longer recognizes any records made for non-metric distances. Only performances in 50-m pools are recognized as World Records.

<i>Distance</i>	<i>min:sec</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
<b>FREESTYLE</b>				
50 m	22.33	Matthew Biondi (US)	Orlando, Fla	June 26, 1986
100 m	48.74	Matthew Biondi (US)	Orlando, Fla	June 24, 1986
200 m	1:47.44	Michael Gross (W Ger)	Los Angeles	July 29, 1984
400 m	3:47.80	Michael Gross (W Ger)	Remscheid, W Ger	June 27, 1985
800 m	7:50.64	Vladimir Salnikov (USSR)	Moscow, USSR	July 4, 1986
1,500 m	14:54.76	Vladimir Salnikov (USSR)	Moscow	Feb 22, 1983
4 x 100 m Relay	3:17.08	US National Team (Scott McCadam, Michael Heath, Paul Wallace, Matthew Biondi)	Tokyo	Aug 17, 1985
4 x 200 m Relay	7:15.69	US National Team (Michael Heath, David Larson, Jeff Float, Bruce Hayes)	Los Angeles	July 30, 1984
<b>BREASTSTROKE</b>				
100 m	1:01.65	Steve Lundquist (US)	Los Angeles	July 29, 1984
200 m	2:13.34	Victor Davis (Canada)	Los Angeles	Aug 2, 1984
<b>BUTTERFLY STROKE</b>				
100 m	52.84	Pedro Pablo Morales (US)	Orlando, Fla	June 23, 1986
200 m	1:56.24	Michael Gross (W Ger)	Hanover, W Ger	June 27, 1986

(continued)



## BACKSTROKE

100 m	55.19	Richard (Rick) Carey (US)	Caracas, Venezuela	Aug 21, 1983
200 m	1:58.14	Igor Polyansky (USSR)	Erfurt, E Ger	Mar 3, 1985

## INDIVIDUAL MEDLEY

200 m	2:01.42	Alex Baumann (Canada)	Montreal, Canada	Mar 4, 1986
	2:01.42	Alex Baumann (Canada)	Los Angeles	Aug 4, 1984
400 m	4:17.41	Alex Baumann (Canada)	Los Angeles	July 30, 1984

## MEDLEY RELAY

(Backstroke, Breaststroke, Butterfly Stroke, Freestyle)

4 x 100 m	3:38.28	US National Team	Tokyo	Aug 18, 1985
		(Richard "Rick" Carey, John Moffett, Pablo Morales, Matthew Biondi)		

## SWIMMING WORLD RECORDS (WOMEN)

<i>Distance</i>	<i>min:sec</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
<b>FREESTYLE</b>				
50 m	25.28	Tamara Costache (Romania)	Madrid, Spain	Aug 23, 1986
100 m	54.73	Kristin Otto (E Ger)	Madrid, Spain	Aug 19, 1986
200 m	1:57.55	Heike Friedrich (E Ger)	E Berlin	June 18, 1986
400 m	4:06.28	Tracey Wickham (Aust)	W Berlin	Aug 24, 1978





6 hours 41 min 35 sec on Sept 7, 1983. The longest swim around Manhattan was done over a period of 6 days in a row—Aug 15–20, 1985—28½ mi each day (except for the first day—20 mi) by Julie Ridge of NYC, who was an actress in the cast of a Broadway show.

The longest duration swim ever achieved was one of 168 continuous hours, ending on Feb 24, 1941, by the legless Charles Zibbelman, *alias* Jimmy (b 1894), of the US, in a pool in Honolulu, Hawaii.

The longest duration swim by a woman was 129 hours 45 min by Vicki Keith of Kingston, Ont, Canada, June 5–10, 1986. She covered about 78 mi in a pool.

The greatest distance covered in a continuous swim is 299 miles by Ricardo Hoffmann (b Oct 5, 1941) from Corrientes to Santa Elena, Argentina, in the River Paraná in 84 hours 37 min, Mar 3–6, 1981.

## Earliest Channel Swimmers

The first to swim the English Channel (without a life jacket) was the merchant navy captain Matthew Webb (1848-83) (GB), who swam breaststroke from Dover, England, to Calais Sands, France, in 21 hours 45 min, Aug 24-25, 1875. Webb swam an estimated 38 miles to make the 21-mile crossing. Paul Boyton (US) had swum from Cap Gris Nez to the South Foreland in his patented lifesaving suit in 23 hours 30 min, May 28-29, 1875. There is good evidence that Jean-Marie Saletti, a French soldier, escaped from a British prison hulk off Dover by swimming to Boulogne in July or Aug 1815. The first crossing from France to England was made by Enrico Tiraboschi, a wealthy Italian living in Argentina, who crossed in 16 hours 33 min on Aug 12, 1923, to win a \$5,000 prize. By the end of 1981 the English Channel had been swum by 228 persons on 366 occasions.

The first woman to succeed was Gertrude Ederle (b Oct 23, 1906) (US) who swam from Cap Gris Nez, France, to Deal, England, on Aug 6, 1926, in the then record time of 14 hours 39 min. The first woman to swim from England to France was Florence Chadwick of California, in 16 hours 19 min on Sept 11, 1951.

## Most Conquests of the English Channel

The greatest number of Channel conquests is 31 by Michael Read (GB), to Aug 19, 1984, including a record 6 in one year. Cindy Nicholas (Canada) (b Aug 20, 1957) made her first crossing of the Channel on July 29, 1975, and her 19th (and fifth 2-way) on Sept 14, 1982.

## Youngest and Oldest Channel Swimmers

The youngest conqueror is Marcus Hooper (b June 14, 1967) of Eltham, England, who swam from Dover to Sangatte, France, in 14 hours 37 min, when he was aged 12 years 53 days. The youngest woman was Samantha Claire Druce (b Apr 21, 1971) aged 12 years 119 days when she swam from England to France in 15 hours 27 min on Aug 18, 1983.

The oldest is Ashby Harper (b Oct 1, 1916) of Albuquerque, N Mex, at 65 years 332 days. He swam from Dover to Cap Blanc Nez in 13 hours 52 min on Aug 28, 1983. He also held the record as the oldest person to swim around Manhattan before that record was broken on Aug 26, 1984 by the 73-year-old Dr Adrian Kanaar of Poughkeepsie, NY.

The oldest woman to conquer the Channel is Stella Ada Rosina Taylor (b Bristol, Avon, England, Dec 20, 1929), aged 45 years 3<sup>rd</sup> days when she swam it in 18 hours 15 min on Aug 26, 1975.

## Double Crossings of the Channel

Antonio Abertondo (Argentina), aged 42, swam from England to France in 18 hours 50 min (8:35 a.m. on Sept 20 to 3:25 a.m. on Sept 21, 1961) and after about 4 minutes' rest returned to England in 16 hours 16 min, landing at St Margaret's Bay at 3:45 a.m. on Sept 22, 1961, to complete the first "double crossing" in 43 hours 10 min.

The fastest double crossing was by Philip Rush (NZ) (b Nov

1963), who swam the fastest, 17 hours 56 min, beating the 18 hours 15 min set in 1983.

The fastest by a relay team is 15 hours 36 min 30 sec by the West One International Team on Sept 24, 1985.

### Triple Crossing of the Channel

The first triple crossing of the English Channel was by Jon Erikson (b Sept 6, 1954) (US) in 38 hours 27 min, Aug 11-12, 1981.

### Fastest Channel Crossings

The official Channel Swimming Association record is 7 hours 40 min by Penny Dean (b March 21, 1955) of California, who swam from Shakespeare Beach, Dover, England to Cap Gris Nez, France on July 29, 1978.

The fastest crossing by a relay team is 7 hours 17 min by 6 Dover (Eng) lifeguards from England to France on Aug 9, 1981.

### Relay Records

The New Zealand national relay team of 20 swimmers swam a record 113.59 mi in Lower Hutt, NZ in 24 hours, passing 100 mi in 20 hours 47 min 13 sec on Dec 9-10, 1983.

The most participants in a one-day swim relay is 2,135, each swimming a length, organized by the Syracuse (NY) YMCA, Apr 11, 1986.

The longest duration swim relay was 216 hours 50 min 16 sec for 373.57 mi by a team of 20 at Katowice, Poland, Feb 17-26, 1987.

The fastest time recorded for 100 miles in a pool by a team of 20 swimmers is 21 hours 41 min 4 sec by the Dropped Sports Swim Club



**DIVING CHAMPION:** Greg Louganis (US), considered by many to be the best diver in the world in the 1980's, is one of two divers to earn perfect 10's from all 7 judges for one dive. He achieved the feat while winning his 2nd and 3rd world championships. In the 1984 Olympics he won 2 gold medals and set new world records for springboard and highboard.



of Indiana State University at Terre Haute, Ind, Mar 12-13, 1982. Four swimmers from the Darien YMCA, Conn, covered 300 miles in relay in 122 hours 59 min 40 sec, Nov 25-30, 1980.

## 24-Hour Swim

David Goch (US) swam 55.682 mi in a 25-yd pool at Univ of Mich, May 17-18, 1986. In a 50-m pool, Bertrand Malegue swam 54.39 mi at St Etienne, France, May 31-June 1, 1980. The women's record is 42.05 mi in a 25-m pool by Alyson Gibbons (UK) in Birmingham, Eng, Sept 7-8, 1985.

## Diving Titles

Greg Louganis (US) (b Jan 29, 1960), won 5 world diving titles, one in 1978, and 2 in both 1982 and 1986, as well as 2 Olympic golds in 1984. At Guayaquil, Ecuador, he became the first to score over 700 points for the 11-dive springboard event with 752.67 on Aug 1, 1982. He went on to be awarded a score of 10.0 by all 7 judges for his highboard inward 1½ somersault in the pike position. In the 1984 Olympics, Louganis won two gold medals and set record totals of 754.41 for springboard and 710.91 for highboard.

Klaus Dibiasi (Italy, b Austria, Oct 6, 1947) won a total of 5 Olympic diving medals (3 gold, 2 silver) in 4 Games from 1964 to 1976. He is also the only diver to win the same event (highboard) at 3 successive Games (1968, 72 and 76). He also won 4 medals (2 gold, 2 silver) in world events in 1973 and 1975.

Irina Kalinina (USSR) (b Feb 8, 1959) has won 5 medals (3 gold, one silver, one bronze) in 1973, 1975 and 1978.

## Perfect Dive

In the 1972 US Olympic Trials, held in Chicago, Michael Finneran (b Sept 21, 1948) was awarded a score of 10 by all seven judges for a backward 1½ somersault 2½ twist (free) from the 10-m platform, an achievement then without precedent. Greg Louganis matched this feat in 1982.

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## NNIS

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More information about tennis including tournament winners can be found in the *Guinness Sports Record Book*.)

## Origins

The modern game of lawn tennis is generally agreed to have evolved as an outdoor form of the French Royal Tennis or *Jeu de Paume* from the 11th century. "Field Tennis" was mentioned in an English magazine (*Sporting Magazine*) on Sept 29, 1793. In 1858 Major Harry Gem laid out a "court" on the lawn of a friend in Birmingham, Eng, and in 1872 he founded the Leamington Club. In Feb 1874, Major Walter Clopton Wingfield of England (1833-1912) patented a form

called "sphairistike," which was nicknamed "sticky," but the game soon became known as lawn tennis. The US Lawn Tennis Association (USLTA) was founded in 1881.

Amateurs were permitted to play with and against professionals in Open tournaments starting in 1968.

#### HIGHEST EARNINGS:

Martina Navratilova, easily the top money-winning woman athlete in the world, is one of 3 women who have won the "grand slam" (1983-84). She had a streak of 74 singles victories in 1984 and 109 doubles victories 1983-85. (USTA)



### "Grand Slams"

The "grand slam" is to hold at the same time all four of the world's major championship titles: Wimbledon, the US Open, Australian and French championships. The first time this occurred was in 1935 when Frederick John Perry (GB) (b 1909) won the French title, having won Wimbledon (1934), the US title (1933-34) and the Australian title (1934).

The first player to hold all four titles simultaneously was J. Donald Budge (US) (b June 13, 1915), who won the championships of Wimbledon (1937), the US (1937), Australia (1938), and France (1938). He subsequently retained Wimbledon (1938) and the US (1938). Rodney George Laver (Australia) (b Aug 9, 1938) achieved this grand slam in 1962 as an amateur and repeated as a professional in 1969 to become the first two-time grand slammer.

Three women players also have won all these four titles in the same tennis year. The first was Maureen Catherine Connolly (US). She won the US Open title in 1951, Wimbledon in 1952, retained the US title in 1952, won the Australian in 1953, the French in 1953, and Wimbledon again in 1953. She won her third US title in 1953, her second French title in 1954, and her third Wimbledon title in 1954. Miss Connolly (later Mrs Norman Brinker) was seriously injured in a riding accident shortly before the 1954 US championships; she died in June 1969, aged only 34.

The second woman to win the "grand slam" was Margaret Smith



Court (Australia) (b July 16, 1942) in 1970. Martina Navratilova (US) (b Prague, Oct 18, 1956) became the most recent "grand slam" winner on June 9, 1984 when she won the French title, beating Christine Evert Lloyd (US), after winning the other three titles in 1983. She won 6 successive "grand slam" singles titles 1983-Sept 1984, and with her partner Pamela Howard Shriver (US) (b July 4, 1962) won 8 successive "grand slam" tournament women's doubles titles, and 109 successive doubles matches from Apr 24, 1983 through July 6, 1985.

The most singles championships in "grand slam" tournaments is 24 by Margaret Court (11 Australian, 5 French, 5 US, 3 Wimbledon), 1960-73. The men's record is 12 by Roy Emerson (Australia) (b Nov 3, 1936) (6 Australian, 2 each French, US, Wimbledon), 1961-67.

In doubles, the only men to win a "grand slam" are Frank Sedgman (Aust) and Ken McGregor (Aust) in 1951. Margaret Smith Court (Aust) and Ken Fletcher (Aust) won it in mixed doubles in 1961. Martina Navratilova (US) and Pam Shriver (US) managed a "grand slam" in doubles in 1983-84, the same year Martina got her "grand slam" in singles.

## WIMBLEDON RECORDS

The first Championship was in 1877. Professionals first played in 1968. From 1971 the tie-break system was introduced, which effectively prevents sets proceeding beyond a 17th game, i.e., 9-8.

### Most Wins

Six-time singles champion Billie Jean King (*née* Moffitt) has also won 10 women's doubles and 4 mixed doubles during the period 1961 to 1979, to total a record 20 titles.

The greatest number of singles wins was 8 by Helen N. Moody (*née* Wills) (b Oct 6, 1905) (US), who won in 1927-30, 32-33, 35 and 38. His record was tied by Martina Navratilova in 1978, 79, and 82-87.

The greatest number of singles wins by a man since the Challenge Round (wherein the defending champion was given a bye until the final round) was abolished in 1922, is 5 consecutively by Bjorn Borg (Sweden) in 1976-80. The all-time men's record was 7 by William C. Wenshaw, 1881-86 and 1889.

The greatest number of doubles wins by men was 8 by the brothers Doherty (GB)—Reginald Frank (1872-1910) and Hugh Lawrence (1875-1919). They won each year from 1897 to 1905 except for 1902. Hugh Doherty also won 5 singles titles (1902-06) and holds the record for most men's titles with 13.

The most wins in women's doubles was 12 by Elizabeth "Bunny" Ryan (US) (1894-1979). The greatest number of mixed doubles wins was 7 by Elizabeth Ryan, giving her a record total of 19 doubles wins 1914-34.

The men's mixed doubles record is 4 wins: by Elias Victor Seixas (Aug 30, 1923) (US) in 1953-56; by Kenneth N. Fletcher (b June 1, 1940) (Australia) in 1963, 65-66 and 68; and by Owen Keir Davidson (Australia) (b Oct 4, 1943) in 1967, 71 and 73-74.

### Youngest Champions

The youngest champion ever at Wimbledon was Charlotte (Lottie)



**WIMBLEDON WINNER:** Pat Cash, by conquering #1 seed Ivan Lendl in 1987 in a hard-fought battle replete with volleying, became the first Australian to win the singles title in 16 years. (David L. Boehm)



**YOUNGEST WIMBLEDON WINNER:** Boris Becker (W Ger) was not yet 18 when he beat the favorites and was victorious in 1985. A year later he won again but was eliminated in the second round in 1987. (Photo by David L. Boehm/Tamron)



**RISEING STAR:** Steffi Graf (W Germany, b June 14, 1969) was seeded #2 in the world after defeating both Chris Evert and Martina Navratilova in Fla on Mar 2, 1987. She was not yet 18 at the time. (Carol Neuser/Virginia Slims)

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Spain





the Houston Astrodome in Houston, Tex., on Sept 20, 1973, to watch Billie Jean King (US, b Nov 22, 1943) beat Robert Larimore (Bobby) Riggs (US, b Feb 25, 1918), over 25 years her senior, in straight sets in the so-called "Tennis Match of the Century."

The record for an orthodox match is 25,578 at Sydney, Australia, on Dec 27, 1954, in the Davis Cup Challenge Round vs the US (1st day).

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## TRACK AND FIELD

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### Earliest References

There is evidence that running was involved in early Egyptian rituals at Memphis c. 3800 bc, but usually track and field athletics date from the ancient Olympic Games. The earliest accurately known Olympiad dates from July 776 bc, at which celebration Coroibos won the foot race of 164–169 yd. The oldest surviving measurements are a long jump of 23 ft 1½ in by Chionis of Sparta c. 656 bc, and a discus throw of 100 cubits (c. 152 ft) by Protesilaus.

### Earliest Landmarks

The first time 10 sec ("even time") was bettered for 100 yd under championship conditions was when John Owen, then 30 years old, recorded 9½ sec in the AAU Championships at Wash, DC, on Oct 11, 1890. The first recorded instance of 6 ft being cleared in the high jump was when Marshall Jones Brooks (1855–1944) jumped 6 ft 0⅞ in at Marston, near Oxford, England, on March 17, 1876 (He is reputed to have done much of his jumping while wearing a high hat.) The first man over 7 ft was Charlie Dumas (US) who jumped 7 ft 0½ in in June 1956. The breaking of the "4-minute barrier" in the one mile was first achieved by Dr Roger Gilbert Bannister (b Harrow, England, March 23, 1929), when he recorded 3 min 59.4 sec on the Iffley Road track, Oxford, at 6:10 p.m. on May 6, 1954. John Walker (NZ) became the first man to run the mile in less than 4 min 100 times by Feb 17, 1985, in Auckland, NZ. His time was 3:54.57.

### Most Records

The greatest number of official world records (in events on the current schedule) broken by one athlete is 14, by Paavo Nurmi (Fin) at various events between 1921 and 1931, and by Iolanda Balas (Rom) in the high jump from 1956 to 1961. Nurmi also set eight marks in events no longer recognized, giving him a grand total of 22.

The only athlete to have his name entered in the record book 6 times in one day (in fact, within one hour) was J. C. "Jesse" Owens (US) (1913–80) who at Ann Arbor, Mich, on May 25, 1935, equaled the 100-yd running record with 9.4 sec at 3:15 p.m.; long-jumped 26 ft 8¼ in at 3:25 p.m.; ran 220 yd (straight away) in 20.3 sec at 3:45 p.m.; and 220 yd over low hurdles in 22.6 sec at 4 p.m. The two 220-yd runs were ratified as 200-m world records.



## World Championships

The first-ever track and field world championships were staged at Helsinki, Finland, Aug 7–14, 1983. The most gold medals won was 3 by Carl Lewis (US) in the 100 m dash, long jump, and 4 × 100 m relay; and by Marita Koch (E Ger) in the 200 m dash, 4 × 100 m relay, and 4 × 400 m relay. With a silver medal in the 100 m dash, Koch was the top medal winner with 4.

## Fastest Speed

The fastest speed recorded in an individual world record is 22.69 mph, but this does not allow for the effects of the delay in reaching peak speed from a standing start. Maximum speeds exceeding 25 mph for men and 22.5 mph for women have been measured; for instance, for Carl Lewis and Evelyn Ashford, respectively, for their final 100 meters in the 1984 Olympic sprint relays.

## Standing Long Jump

Joe Darby (1861–1937), the famous Victorian professional jumper from Dudley, Worcestershire, England, jumped a measured 12 ft 1½ in *without* weights at Dudley Castle, on May 28, 1890. Arne Tverrvaag (Norway) jumped 12 ft 2¼ in in 1968. The best long jump by a woman is 9 ft 7 in by Annelin Mannes (Norway) at Flisa, Norway Mar 7, 1981.

## Oldest and Youngest Record Breakers

The greatest age at which anyone has broken a world track and field record is 41 years 196 days in the case of John J. Flanagan (1868–1938), who set a world record in the hammer throw on July 24, 1909. The female record is 36 years 139 days for Marina Stepanova (USSR) (*née* Makeyeva, b May 1, 1950) when she ran 400 m hurdles in 52.94 sec in Tashkent, USSR, Sept 17, 1986.

The youngest individual record breaker is Wang Yang (b Apr 9, 1971) (China) who set a women's 3,000 m walk record in 21 min 33.8 sec at Jian, China on Mar 9, 1986, when aged 14 years 334 days. The male record is 17 years 198 days by Thomas Ray (1862–1904) when he pole-vaulted 11 ft 2¼ in on Sept 19, 1879.

## Most Olympic Gold Medals in Field and Track

The most Olympic gold medals won in field events is 10 individual medals by Ray C. Ewry (US) (1874–1937) with:

Standing High Jump	1900, 1904, 1906, 1908
Standing Long Jump	1900, 1904, 1906, 1908
Standing Triple Jump	1900, 1904

The most gold medals won by a woman is 4, a record shared by Francina E. Blankers-Koen (Netherlands) (b Apr 26, 1918) with 100 m, 200 m, 80 m hurdles and 4 × 100 m relay (1948); Betty Cuthbert (Australia) (b Apr 20, 1938) with 100 m, 200 m, 4 × 100 m relay (1956) and 400 m (1964); and Barbel Wöckel (*née* Eckert) (b March 21, 1955) (E Germany) with 200 m and 4 × 100 m relay in 1976 and 1980.

The most gold medals at one Olympic celebration is 5 by Nurmi in





1924 and the most individual is 4 by Alvin C. Kraenzlein (US) (1876–1928) in 1900 with 60 m, 110 m hurdles, 200 m hurdles and long jump.

## 24-Hour Record

The greatest distance run on a standard track in 24 hours is 170 miles 974 yd by Dave Dowdle (b Nov 7, 1954) (Gloucester AC) at Blackbridge, Gloucester, England, May 22–23, 1982. The best by a woman is 133 miles 939 yd by Lynn Fitzgerald (b Sept 9, 1947) (Highgate Harriers) in the same race.

## Longest Winning Sequence

Iolanda Balas (Romania) (b Dec 12, 1936) won 140 successive high jump competitions from 1956 to 1967. The record for track races is 122 at 400-meter hurdles by Edwin Corley Moses (US) (b July 31, 1955) from 1977 to his defeat by Danny Harris (US) (b Sept 7, 1965) in Madrid on June 4, 1987.

## Oldest and Youngest Olympic Champions

The oldest athlete to win an Olympic gold was Irish-born Patrick J. "Babe" McDonald (US) (1878–1954) who was aged 42 years 26 days when he won the 56-lb weight throw at Antwerp, Belgium on Aug 21, 1920. The oldest female champion was Lia Manoliu (Romania) (b Apr 25, 1932) aged 36 years 176 days when she won the discus at Mexico City on Oct 18, 1968.

The oldest Olympic medalist was Tebbs Lloyd Johnson (1900–84), aged 48 years 115 days when he was third in the 1948 50,000 m walk. The oldest woman medalist was Dana Zatopkova aged 37 years 248 days when she was second in the javelin in 1960.

The youngest gold medalist was Barbara Pearl Jones (US) (b March 26, 1937) who was a member of the winning 4 × 100 m relay team, aged 15 years 123 days, at Helsinki, Finland, on July 27, 1952. The youngest male champion was Robert Bruce Mathias (US) (b Nov 17, 1930) aged 17 years 263 days when he won the decathlon at London, Aug 5–6, 1948.

## Most US Gold Medals in Track and Field in One Olympiad

Carl Lewis won 4 gold medals—in the 100 and 200 m sprints, the long jump, and as the anchor runner of the world-record-setting 4 × 100 m relay team in 1984—matching the record Jesse Owens (US) set in the 1936 Olympics.

## Longest Race

The longest races ever staged were the 1928 (3,422 miles) and 1929 (3,665 miles) transcontinental races from NYC to Los Angeles. The Finnish-born Johnny Salo (1893–1931) was the winner in 1929 in 79 days, from March 31 to June 18. His elapsed time of 525 hours 57 min 20 sec gave a running average of 6.97 mph. His margin of victory was only 2 min 47 sec.

## WORLD TRACK AND FIELD RECORDS (MEN)

World Records for the men's events scheduled by the International Amateur Athletic Federation. Note: On July 27, 1976, IAAF eliminated all records for races measured in yards, except for the mile (for sentimental reasons). All distances up to (and including) 400 m must be electrically timed to be records. When a time is given to one-hundredth of a second, it represents the official electrically timed record.

A—These records were set at high altitudes—Mexico City 7,349 ft. Colorado Springs 7,201 ft.

### RUNNING

<i>Event</i>	<i>min sec</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
100 m	9.93A	Calvin Smith (US)	Colorado Springs	July 3, 1983
200 m	19.72A	Pietro Mennea (Italy)	Mexico City	Sept 12, 1979
400 m	43.86A	Lee Edward Evans (US)	Mexico City	Oct 18, 1968
800 m	1:41.73	Sebastian Coe (GB)	Florence, Italy	June 10, 1981
1,000 m	2:12.18	Sebastian Coe (GB)	Oslo	July 11, 1981
1,500 m	3:29.46	Said Aouita (Morocco)	W Berlin	Aug 23, 1985
1 mile	3:46.32	Steve Cram (GB)	Oslo	July 27, 1985
2,000 m	4:50.81	Said Aouita (Morocco)	Paris	July 16, 1987
3,000 m	7:32.1	Henry Rono (Kenya)	Oslo	June 27, 1978
5,000 m	13:00.40	Said Aouita (Morocco)	Oslo	July 27, 1985
10,000 m	27:13.81	Fernando Mamede (Portugal)	Stockholm	July 2, 1984
20,000 m	57:24.2	Jos Hermens (Neth)	Papendal, Neth	May 1, 1976
25,000 m	1 hr. 13:55.8	Toshihiko Seko (Japan)	Christchurch, NZ	Mar 22, 1981
30,000 m	1 hr. 29:18.8	Toshihiko Seko (Japan)	Christchurch, NZ	Mar 22, 1981

## FIELD EVENTS

Event	ft	in	Name and Nationality	Place	Date
High Jump	7	11 1/4	J.N.P. Sjöberg (Sweden)	Stockholm	June 30, 1987
Pole Vault	19	9 1/2	Sergei Bubka (USSR)	Prague, Czech	June 23, 1987
Long Jump	29	2 1/2 A	Robert Beamon (US)	Mexico City	Oct 18, 1968
Triple Jump	58	11 1/2	Willie Banks (US)	Indianapolis, Ind	June 16, 1985
Shot Put	74	3 1/2	Udo Beyer (E Ger)	E Berlin	Aug 20, 1986
Discus Throw	243	0	Jürgen Schult (E Ger)	Neubrandenburg, E Ger	June 6, 1986
Hammer Throw	284	7	Yuri Sedykh (USSR)	Stuttgart, W Ger	Aug 30, 1986
Javelin Throw*	343	10	Uwe Hohn (E Ger)	East Berlin	July 20, 1984

*Note: One professional performance which was equal or superior to the IAAF marks, but where the same highly rigorous rules as to timing, measuring and weighing were not necessarily applied, was the Shot Put of 75 ft by Brian Ray Oldfield (US), at El Paso, Tex, on May 10, 1975.*

\* Old javelin—new javelin with center of gravity moved forward was introduced in 1986—record under new rules is 287 ft 7 in by Jan Zelezný (Czech) (b June 16, 1966) at Nitra, Czech, on May 31, 1987.

## HURDLING

Event	min:sec	Name and Nationality	Place	Date
110 m (3'6")	12.93	Rinaldo Nehemiah (US)	Zurich	Aug 19, 1981
400 m (3'0")	47.02	Edwin Corley Moses (US)	Coblenz, W Ger	Aug 31, 1983
3,000 m Steeplechase	8:05.4	Henry Rono (Kenya)	Seattle, Wash	May 13, 1978

## DECATHLON

8,847 points (1985 scoring)	Francis Morgan "Daley" Thompson (GB)	Los Angeles	Aug 8-9, 1984 (continued)
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## RELAYS

<i>Event</i>	<i>min:sec</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
4 × 100 m	37.83	US Team (Sam Graddy, Ron Brown, Calvin Smith, Carl Lewis)	Los Angeles	Aug 11, 1984
4 × 200 m	1:20.26 <sup>†</sup>	University of Southern California (US) (Joel Andrews, James Sanford, William Mullins, Clancy Edwards)	Tempe, Ariz	May 27, 1978
4 × 400 m	2:56.16A	US Olympic Team (Vincent Matthews, Ronald Freeman, G. Lawrence James, Lee Edward Evans)	Mexico City	Oct 20, 1968
4 × 800 m	7:03.89	Great Britain Team (Peter Elliott, Garry Cook, Steve Cram, Sebastian Coe)	London	Aug 30, 1982
4 × 1,500 m	14:38.8	W German Team (Thomas Wessinghage, Harald Hudak, Michael Lederer, Karl Fleschen)	Cologne, W Ger	Aug 17, 1977

<sup>†</sup> The time of 1:20.2 achieved by Texas Christian Univ at Phila. Pa on April 26, 1986 was not ratified as the team was composed of varied nationalities.



# POLE-VAULT

**RECORD-HOLDER:** Sergei Bubka (USSR) keeps breaking his own record every time he leaps. By June 1987, he had reached 19 ft 9½ in.



**THREE WORLD RECORDS IN 20 DAYS:** Steve Cram (GB) set a new record in running 1500 m on July 16, 1985 (3:29.67), in the mile run on July 27 (3:46.32), and 2000 m race on Aug 4 (4:51.39). On Aug 10 he came in with the world's second best time in 1000 m, against a head wind. Shown here, he exults over his victory in the mile. He set a better mark in the 1500 m in 1985. (IAAF Mobile Grand Prix)

<i>Event</i>	<i>min:sec</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
100 m	10.76	Evelyn Ashford (US)	Zurich	Aug 22, 1984
200 m	21.71	Marita Koch (E Ger)	Potsdam, E Ger	July 21, 1984
	21.71	Heike Dreschler (E Ger)	Stuttgart, W Ger	Aug 29, 1986
400 m	47.60	Marita Koch (E Ger)	Canberra, Australia	Oct 6, 1985
800 m	1:53.28	Jarmila Kratochvilova (Czech)	Munich	July 26, 1983
1,000 m	2:30.6	Tanyana Providokhina (USSR)	Podolsk, USSR	Aug 20, 1978
1,500 m	3:52.47	Tatyana Kazankina (USSR)	Zurich, Switz	Aug 13, 1980
1 mile	4:16.71	Mary Decker Slaney (US)	Zurich, Switz	Aug 21, 1985
2,000 m	5:28.69	Maricica Puica (Romania)	London, Eng	July 11, 1986
3,000 m	8:22.62	Tatyana Kazankina (USSR)	Leningrad	Aug 26, 1984
5,000 m	14:37.33	Ingrid Kristiansen (Norway)	Stockholm, Sweden	Aug 5, 1986
10,000 m	30:13.74	Ingrid Kristiansen (Norway)	Oslo, Norway	July 5, 1986

## FIELD EVENTS

<i>Event</i>	<i>ft in</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
High Jump	6 9¾	Stefka Kostadinova (Bulgaria)	Sofia, Bulgaria	May 31, 1986
Long Jump	24 5½	Heike Drechsler (E Ger)	Dresden, E Ger	July 3, 1986
Shot Put	74 3	Natalya Lisovskaya (USSR)	Moscow, USSR	June 7, 1987
Discus Throw	244 7	Zdena Silhava (Czech)	Nitra, Czech	Aug 26, 1984
Javelin Throw	254 1	Fatima Whitbread (GB)	Stuttgart, W Ger	Aug 28, 1986

# HURDLES

<i>Event</i>	<i>min.:sec</i>	<i>Name and Nationality</i>	<i>Place</i>	<i>Date</i>
100 m (2'9")	12.26	Yordanka Donkova (Bulgaria)	Ljubljana, Yugoslavia	Sept 7, 1986
400 m (2'6")	52.94	Marina Stepanova (USSR)	Tashkent, USSR	Sept 17, 1986

# RELAYS

4 x 100 m	41.37	E Germany (Silke Gladisch, Sabine Rieger, Ingrid Auerswold, Marlies Göhr)	Canberra, Australia	Oct 6, 1985
4 x 200 m	1:28.15	E Germany (Marlies Göhr, Romy Müller, Barbel Wöckel, Marita Koch)	Jena, E Ger	Aug 10, 1980
4 x 400 m	3:15.92	E Germany (Gesine Walther, Sabine Busch, Dagmar Ruebsam, Marita Koch)	Erfurt, E Ger	June 3, 1984
4 x 800 m	7:50.17	USSR (Nadezha Olizarenko, Lyubov Gunina, Lyudmila Borisova, Irina Padyalovskaya)	Moscow, USSR	Aug 7, 1984

# HEPTATHLON

158 points	Jackie Joyner (US)	Houston, Tex	Aug 1-2, 1986
	(100-m hurdles 13 16 sec high jump 2 2 2)		





## Mass Relay Record

The record for 100 miles by 100 runners belonging to one club is 7 hours 53 min 52.1 sec by Baltimore Road Runners Club of Towson, Md, on May 17, 1981. The women's mark is 10 hours 47 min 9.3 sec by a team from the San Francisco Dolphins Southend Running Club, on Apr 3, 1977.

The longest relay ever run was 10,524 mi by 2,660 runners at Trondheim, Norway, Aug 26-Oct 20, 1985. Twenty members of the Melbourne Fire Brigade ran around Australia on Highway No. 1 in 43 days 23 hours 58 min, July 10-Aug 23, 1983. The most participants is 4,800 (192 teams of 25), in the Balavierenrace, 103.89 mi from Nijmegen to Enschede, The Netherlands, won in 9 hours 30 min 44 sec on Apr 23, 1983.

## Running Backwards

The fastest time recorded for running 100 yd backwards is 12.8 sec by Ferdie Adoboe (Kenya, now US) in Amherst, Mass, on July 28, 1983.

Anthony "Scott" Weiland, 27, ran the Detroit marathon backwards in 4 hours 7 min 54 sec on Oct 3, 1982.

Donald Davis (b Feb 10, 1960) (US) ran 1 mi backwards in 6 min 7.1 sec at the University of Hawaii on Feb 21, 1983.

Arvind Pandya (India) ran LA-NY in 107 days, Aug 18-Dec 3, 1984.

## Six-Day Race

The greatest distance covered by a man in six days (i.e. the 144 permissible hours between Sundays in Victorian times) was 635 miles 1,385 yards by Yiannis Kouros (Greece) (b Feb 13, 1956) at Colac, Australia on Nov 26-Dec 1, 1984. On the same occasion Eleanor Adams (UK) (b Nov 20, 1947) set the women's record at 500 mi 1,452 yds.



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winding 415-yd course (three tosses mandatory) is 61.0 sec, set by Sally Ann Faulkner, 16, on Feb 26, 1974. The record for the counterpart race at Liberal, Kansas, is 58.5 sec by Sheila Turner (b July 9, 1953) in 1975.

Dale R. Lyons (b Feb 26, 1937) (GB) has run several marathons during which he tosses a 2-oz pancake repeatedly en route in a 1½ lb pan. His fastest time is 3 hours 6 min 48 sec in London, Apr 20, 1986.

### Three-Legged Race

The fastest recorded time for a 100-yd three-legged race is 11.0 sec by Olympic medalists Harry L. Hillman (1881-1945) and Lawson Robertson (1883-1951) in Brooklyn, NYC, on Apr 24, 1909.

### One-Legged High Jump

Arnie Boldt (b 1958), of Saskatchewan, Canada, cleared a height of 6 ft 8¼ in in Rome, Italy, on Apr 3, 1981, in spite of the fact that he has only one leg.

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## WALKING

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### Longest Race

The Paris-Colmar event (until 1980 it was the Strasbourg-Paris event, instituted in 1926 in the reverse direction), now 322 miles, is the world's longest annual walk event. Gilbert Roger (France) has won 6 times (1949, 53-54, 56-58). The fastest performance is by Robert Pietquin (b 1938) (Belgium) who walked 315 miles in the 1980 race in 60 hours 1 min 10 sec (deducting 4 hours of compulsory stops), averaging 5.25 mph. The first woman to complete the race was Annie van den Meer (Neth) (b Feb 24, 1947) who was 10th in 1983 in 82 hours 10 min.

Dumitru Dan (1890-1978) of Romania was the only man out of 200 entrants to succeed in walking 100,000 km (62,137 miles), in a contest organized by the Touring Club de France on Apr 1, 1910. By March 24, 1916, he had covered 96,000 km (59,651 miles), averaging 27.24 miles per day.

### Longest in 24 Hours

The greatest distance walked in 24 hours is 140 mi, 1,229 yd by Paul Forthomme (Belgium), on a road course at Woluwé, Belgium Oct 13-14, 1984. The best by a woman is 125.7 miles by Annie van den Meer (Netherlands) at Rouen, France, Apr 30-May 1, 1984, over a 1.185-km-lap road course.

### Most Olympic Medals

Walking races have been included in the Olympic schedule since 1906, but walking matches have been known since 1589. The only walker to win 3 gold medals has been Ugo Frigerio (Italy) (1901-68) with the 3,000 m and 10,000 m in 1920 and the 10,000 m in 1920 and



## Walking Across the Americas

George Meegen (GB) (b Oct 2, 1952) walked 19,019 mi from Ushuaia, Argentina, at the southern tip of S America to Prudhoe Bay in northern Alaska, taking 2,426 days from Jan 26, 1977 to Sept 18, 1983, and thus completed the first transverse of the Western Hemisphere.

## Walking Backwards

The greatest exponent of reverse pedestrianism has been Plennie L. Ningo (b Jan 24, 1895) then of Abilene, Tex, who started on his 3,000-mile transcontinental walk on Apr 15, 1931, from Santa Monica, Calif, to Istanbul, Turkey, and arrived on Oct 24, 1932. He celebrated the walk's 45th anniversary by covering the 452 miles from Santa Monica to San Francisco, Calif, backwards, in 85 days, aged 81 years.

The longest distance recorded for walking backwards in 24 hours is 34 mi by Anthony Thornton in Minneapolis, Dec 31, 1985-Jan 1, 1986.

## Walking Around the World

The first person reported to have "walked around the world" is George M. Schilling (US), Aug 3, 1897-1904, but the first verified achievement was by David Kunst (b 1939), who started with his brother John from Waseca, Minn. on June 20, 1970. John was killed in 1972 by Afghan bandits who thought they were carrying UNICEF funds they were soliciting. David was wounded, so another brother, Pete, joined him. David arrived home, after walking 14,500 miles, on Oct 5, 1974.

Tomas Carlos Pereira (b Argentina, Nov 16, 1942) spent 10 years, Apr 6, 1968, through Apr 8, 1978, walking 29,825 miles around all 5 continents.

John Lees, 27, of Brighton, England, Apr 11-June 3, 1972, walked 2,876 miles across the US from City Hall, Los Angeles, to City Hall, NYC, in 53 days 12 hours 15 min (53.746 miles per day).

Sean Eugene Maguire (b Sept 15, 1956) (US) walked 7,327 miles from the Yukon River, north of Livengood, Alaska, to Key West, Fla, in 307 days, from June 6, 1978 to Apr 9, 1979.

The record for the trans-Canada (Halifax to Vancouver) walk of 3,764 miles is 96 days by Clyde McRae, 23, from May 1 to Aug 4, 1973.

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## WATER SKIING

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### Origins

The sport originated with people walking on water with planks

attached to their feet, possibly as early as the 14th century. A 19th century treatise on sorcerers refers to Eliseo of Tarentum who, in the 14th century, "walks and dances" on the water. The first report of aquaplaning on large boards behind a motorboat was from the Pacific coast of the US in the early 1900's. A photograph exists of a "plank-riding" contest in a regatta won by a Mr H. Storry at Scarborough, Yorkshire, England, on July 15, 1914. Competitors were towed on a *single* plank by a motor launch.

The present-day sport of water skiing was pioneered by Ralph W. Samuelson on Lake Pepin, Minn, on two curved pine boards in the summer of 1922, though claims have been made for the birth of the sport on Lake Annecy (Haute-Savoie), France, in 1920. The first world organization, the United Internationale de Ski Nautique, was formed in Geneva, Switz on July 27, 1946.

## Slalom

The world record for slalom is 5 buoys on a 10.75-m line by Bob LaPoint (US) at Shreveport, Fla, 1984. Andy Mapple (GB) tied this record in Sept 1985.

The women's record is 4 buoys, on a 11.25-m line, on Oct 2, 1983, by Deena Brush (US) at Okeechellee Record Classic, W Palm Beach, Fla. This was tied in Aug 1985 by Jennifer Leachman.

## Tricks

The tricks or freestyle event involves various maneuvers for which points are awarded according to the degree of difficulty and the speed at which they are performed.

The tricks record is 10.550 points by Patrice Martin (France) on Lake Cadeuil near Royan, France, on Sept 28, 1986.

The women's record is 8.350 points by Ana Maria Carrasco (Venezuela) at McCormick, Fla, on Sept 13, 1984.

## Highest Speed

The fastest water skiing speed recorded is 143.08 mph by Christopher Michael Massey (Australia) on the Hawkesbury River, NSW, Australia, Mar 6, 1983. His drag-boat driver was Stanley Chas Sainty. Donna Patterson Brice (US) (b 1953) set a feminine record 111.11 mph at Long Beach, Calif, on Aug 21, 1977.

## Most Titles

World overall championships (instituted 1949) have been won 11 times by Sammy Duvall (US) in 1981, 1983 and 1985. The women's title has been won three times by Mrs Willa McGuire (*née* Worthen) of the US, in 1949-50 and 55, and Elizabeth Allan-Shetter (I) in 1965, 69, and 75. Allan-Shetter has also won a record 8 individual championship events and is the only person to win all 4 titles (slalom, jumping, tricks and overall) in one year, at Copenhagen, Denmark 1969. The US has won the team championship on 15 successful occasions, 1957-85.







## Jumps

The first recorded jump on water skis was 50 ft by Ralph W. Samuelson, off a greased ramp at Lake Pepin, Wis., in 1925, and this was not exceeded officially until 1947.

The longest jump recorded is one of 203 ft by Michael Hazelwood (GB) at Birmingham, Ala., on June 30, 1986. The women's record is 150 ft 11 in by Deena Brush (US) in Houston, Tex., on May 30, 1987.

A high jump record of 5½ ft by 9 men simultaneously over a 14-ft wide ramp was set by the US Water Ski Show Team on July 20, 1986, on the Hudson River at Albany, NY, as part of the city's Tri-Centennial.

## Longest Run

The greatest distance traveled is 1,304.6 miles by Will Coughy on Feb 18-19, 1984 on Lake Tikitapu, New Zealand.

## Barefoot

The first person to water ski barefoot is reported to be Dick Pope, Jr., at Lake Eloise, Fla., on March 6, 1947. The barefoot duration record is 2 hours 42 min 39 sec by Billy Nichols (US) (b 1964) on Lake Weir, Fla., on Nov 19, 1978. The backwards barefoot record is 39 min by Paul McManus (Australia). The barefoot jump record is 65 ft 11¼ in by Mike Siepel in 1984. The official barefoot speed record (two runs) is 110.02 mph by Lee Kirk (US) at Firebird Lake, Phoenix, Ariz., on June 11, 1977. His fastest run was 113.67 mph. The fastest by a woman is 73.67 mph by Karen Toms (Australia) on Mar 31, 1984 in New South Wales, Australia. The fastest official speed backward and barefoot is 62 mph by Robert Wing (Australia) on Apr 3, 1982.



**KNEEBOARDING**, a form of water skiing, has been popular, especially in Florida, for quite a few years. On July 5, 1987, four kneeboarders led by Paul Domb (second from right) went from Bimini to Key Biscayne, leaving at 7:30 AM and arriving 3 hours 45 min later, after traversing 58 mi. (Photo by Aixa Montero)

# NEWLY VERIFIED RECORDS

The following records were received and verified too late to be included in the main section of this book.

**Quintuplets** (p 22). The first test-tube group of 5 babies was born to Linda and Bruce Jacobssen at Univ College Hospital, London, on Apr 26, 1985.

**Isolation** (p 41). Maurizio Montalbini lived for 210 days in a cave—Dec 14, 1986 to July 13, 1987—near Ancona, Italy, watched only by TV monitors. On resurfacing, he thought it was March.

**Fire-Breathing** (p 45). Reg Morris beat his own record when he blew a flame 31 ft from his mouth at Miners Rest, Chasetown, Eng, on Oct 29, 1986.

**Rarest Bird** (p 75). The last-known dusky seaside sparrow was found dead on June 16, 1987 at Discovery Island, Disney World, Fla.

**Cucumber** (p 108). Mrs Chappel beat her own record by growing a cucumber of 52 lb 14¾ oz in June 1987.

**Bouquet** (p 107). A 36-ft-10-in-high bouquet of 9,299 flowers was made by 36 people in 335 hours in Annecy, France on Sept 19, 1986.

**Mountain Climbing** (p 130). A 91-year-old American woman named Hulda Crooks climbed Mt Fuji, the highest peak in Japan (12,385 ft) on July 24, 1987. The oldest man was 99 in 1986 when he reached the summit.

**Most Expensive Perfume** (p 165). *Herbes des Galles* launched "Kimberley" in June 1987 to sell at \$12,600 per ounce. The recipe calls for 22 ingredients that come from Morocco, Comoro Islands and France.

**Largest Drum** (p 215). A drum 13 ft in diameter, said to be worth £5,000 (\$8,000), built by the Supreme Drum Co, was played at the Royal Festival Hall, London, on May 31, 1987.

**Longest Runs** (p 224). A *Chorus Line* entered its 13th year on July 25, 1987. It was created by Michael Bennett who died in his 44th year in Arizona on July 2, 1987.

**Successful Singer** (p 240) Madonna (b Aug 16, 1959, Madonna Louise Veronica Ciccone) increased her lead over other female vocalists with her 5th No 1 single in Aug 1987.

**Largest Hotel Lobby** (p 249). The lobby of the Hyatt Regency Hotel, San Francisco, is 350 ft long and 160 ft wide.

**Largest Illuminated Sign** (p 264). The letter "M" installed on the Great Mississippi River Bridge is 1,800 ft long and comprises 200 high-intensity lamps.

**Fastest Road Car** (p 289). The Porsche 959 road-tested at a speed of 197 mph.

**Small Bicycles** (p 299). Charly Charles of Las Vegas, Nev, has surpassed his own records for making rideable miniature bikes. He and his wife ride a tandem bike he built with a 2-ft wheel base and 2½-in-diameter wheels. The frame rises only 6 in from the floor and the seats are 6 in above that. He also has built a bike with wheels made from 50-cent pieces that is gold-plated with inserts of 9 diamonds

weighing 11 carats. It is on display at Motocay Jewelers in Las Vegas, valued at \$65,000.

**Young Pilot** (p 315). Christopher Lee Marshall, age 10 (b Jan 23, 1977) of Oceano, Calif, claims to have been at the controls when he flew in 5 stops from his hometown to Fort Lauderdale, Fla, approximately 3,000 miles in 35 hours of flying time, alone with his instructor, Robert "Rowe" Yates.

**Public Clock** (p 331). The largest 2-faced clock is a digital electronic clock  $44 \times 44 \times 28$  ft which revolves on top of the Texas Building in Fort Worth.

**Cans** (p 350). The largest collection has been made by John F. Ahrens of Mount Laurel, NJ with nearly 15,000 different cans. A larger collection of 7,930 different beer cans along with 17,683 different soda cans is on display in the Museum of Beverage Containers and Advertising in Goodlettsville, Tenn. The collection and the museum belong to Paul and Tom Bates, father and son, and Karen Bates.

**Jig-Saw Puzzles** (p 355). A puzzle of 150,000 pieces measuring  $82 \times 48$  ft (less than record in area) was made in July 1986 by *L'association l'Arbre aux Mille Sources*.

**Gun** (p 362). The prototype .45 Colt of 1873 was sold at auction for \$242,000 on May 15, 1987.

**Prolific Pig** (p 367). A large white pig owned by H. S. Pedlingham is said to have farrowed 65 piglets in 3 litters in under 12 months in 1930.

**Goat** (p 371). An angora goat was sold for £14,700 (\$23,520) in Gloucestershire, Eng, on May 23, 1987.

**"FANTASTICK" THEATRE OWNER:** Jules Field in front of the Sullivan St Playhouse in Greenwich Village, where the longest running off-Broadway musical began its 28th year in June 1987.



**Divorces** (p 379). In 1986 in the US 2% of all *existing* marriages broke up.

**Longest Marches** (p 386). 42 Commando Royal Marines carrying 40-lb packs including a rifle covered the marathon distance in Plymouth, Eng, on Dec 7, 1986 in a record 4 hours 48 min 9.71 sec.

**Personal Injury Damages** (p 389). An unnamed 8-year-old boy born with deformed limbs due to his mother's anti-nausea drug-taking was awarded \$95 million by a Federal jury in Wash, DC on July 14, 1987.

**Defamation** (p 390). The largest sum awarded an author was £500,000 (\$800,000) to Jeffrey Archer (b Apr 15, 1940) against the *Star*, a London newspaper, on July 24, 1987.

**Tallest Cake** (p 405). A team of 20 chefs created an 83-tier cake 70 ft 4½ in high on June 18, 1987 at Collins Hotel, Melbourne, Australia.

**Pecan Pie** (p 408). At the Fourth Annual Pecan Festival in Okmulgee, Okla, on June 19, 1987, the bakery department of Okla State Univ Technical Branch baked a pie which was 20.7 feet in diameter, 3 in thick and weighed 6,353 pounds. The ingredients were mixed in a brand new cement mixer truck, students from the school rolled the dough and the pie cooked for approximately 5 hours and cooled 9 hours so that on the following morning the sale of 5,500 pieces could take place.

**Paella** (p 408). A 40-ft diameter paella was made for 25,000 (?) people in Madrid, Spain by Andres Esteban Hernandez on June 28, 1987.

**Sausage** (p 411). The longest continuous sausage—9.89 mi long—was prepared by Messrs Dewhurst in London in 17 hours 17 min, transported to Hyde Park, and cooked by Scouts June 17–18, 1987. It contained 100,000 portions and weighed more than 4½ tons.

**Strawberry Bowl** (p 411). The largest consisted of 1,256 lb picked by students from Hazelrigg School at Hewitts Farm, Kent, Eng on July 2, 1987.

**Steepest Street** (p 413). Pittsburgh's Canton Ave in the Beechview section is said to have a grade of 37°, according to a claim received from Christopher S. Fite of Blawnox, Pa.

**Deep Diving** (p 432). Rossana Majorca (Italy) set the women's record of 246 ft 0¾ in without equipment, staying underwater 2 min 7 sec off Syracuse, Sicily, on July 31, 1987.

**Crawling** (p 447). A new record of 28 mi was set by two 19-year-olds from Miami Univ, Bob DiSalle of Toledo and Bob Kunkle of Findlay, Ohio, Aug 4–6, 1987. They took 32 hours.

**Longest Line of Coins** (p 447). Residents and visitors of Boulder City, Nev, laid 21.391 miles of pennies (worth \$19,784.14) on Sept 21, 1985.

**Dancing, Conga** (p 449). A "snake" of 10,442 people was recorded at the Edmonton (Canada) Heritage Festival on Aug 3, 1987.

**Dancing, Limbo** (p 449). Kelly Foley, 12, tied the roller-skate record of 5¼ in on May 23, 1987 at Parramatta, NSW, Australia.

**Hula-Hooping** (p 457). Miss Desai of the Bulgarian Kahaiovi Troupe gyrated 75 hoops to set a women's record on July 12, 1987 at Wellington Pier, Eng.

**Juggling** (p 458). Tim Nolan of Norfolk, Va (b Oct 21, 1958) bounce-juggled 9 balls on June 25, 1987 at Old Dominion Univ.

**Leap Frogging** (p 461). The Phi Delta Gamma Fraternity beat their

**BOWLING "MARATHON MADNESS" WINNER:** Diane Mohon-Westmoreland of Waskom, Tex, bowled 150 games in 17 hours 22 min in Mar 1987 to win the tournament.



own record, covering 602 mi in 105 hours 44 min, May 16-21, 1986, with a total of 106,406 leaps.

**Magician, Most Versatile** (p 463). Topper Martyn of Uppsala, Sweden, performed 69 tricks within 4 min on Swedish TV on Oct 17, 1986.

**Spitting** (p 474). Rick Kraus achieved 66 ft 6 in in spitting a cherrystone, beating his own record on July 4, 1987 at Eau Claire, Mich.

**Walking-on-Hands** (p 482). A 4-man relay covered one mile in 24 min 48 sec on Mar 15, 1987 at Knoxville, Tenn.

**Frankfurter Eating** (p 487). Reg Morris of Brownhills, W Midlands, Eng, (see *Fire-Eating*) ate 30 (2-oz) frankfurters in 64 sec at the Miners Rest, Burntwood, Eng on Dec 10, 1986.

**Pizza Eating** (p 489). Ken Kenmuir ate a pizza weighing 2 lb in 55.28 sec at Pizzaland, Glasgow, Scotland on June 26, 1987.

**Sandwiches** (p 489). Reg Morris (see above) ate 40 jam and butters (jam-butties) measuring  $6 \times 4 \times \frac{1}{2}$  in in 17 min 20 sec at the Miners Rest, Burntwood, Eng, on Nov 25, 1986.

**Richest People** (p 491). Forbes Magazine estimated on July 13, 1987 that Yoshiaki Tsutsumi, 53, has assets of \$21,000 million in ships and real estate. Japan is said to have 22 billionaires, one more than the US.

**Bowling** (p 530). Highest score of 65,584 in 24 hours was achieved by a team of 6 at Ten Pin Bowl, Goulburn, NSW, Australia, July 11-12, 1987.

**Bowling** (p 533). For 8 games, Betty Morris of Stockton, Calif, rolled 2,063 in the 1987 Ladies Touring Players Invitational in Daytona Beach, Fla surpassing the old mark of 1,996 rolled by Nikki Giannulas. Her 6-game plateau of 1,581 set another record.

**Checkers** (p 563). Gary Davis of Marketown, NSW, Australia, played 177 games simultaneously on July 4, 1987.

**Rope Jumping** (p 584; in chart). Most turns on a single rope—3—at the International Rope Skipping Competition, Greeley, Colo., July 2, 1987.

**Leg Raises** (p 586, under sit-ups). Geoffrey Meyers completed 1,071 in 12 hours in Johannesburg, S. Africa, on June 20, 1987.

**Swimming, Women** (p 634). Janet Evans (US) (b Aug 28, 1971) broke the 800m freestyle at 8:22.44 on July 24, 1987, and the 1,500m freestyle at 16:00.73 on Aug 1, 1987, both at Clovis, Calif.

**Tennis** (p 643). Steffi Graf (W Ger) was elevated to No 1 ranking Aug 16, 1987 when she again defeated Chris Evert in LA.

**Track and Field, Women** (p 656). Javelin: Petra Felke (E Ger) 258 10 in at Leipzig on July 29, 1987. 100m Hurdles: 12.25 sec by Ivanka Zagarcheva (Bulgaria) at Drama, Greece, on Aug 8, 1987.

**High Jump**: Jackie Joyner (US) tied the record of 24 ft 5½ in at the Pan American Games in Indianapolis on Aug 13, 1987.

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